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Southwest Energy-Minerals Conference Proceedings

Albuquerque Convention Center

Albuquerque, New Mexico

November 2 and 3, 1977

Bureau of Land Management
DEPARTMENT OF THE INTERIOR

The Southwest Energy Minerals Conference was held in the Convention Center, Albuquerque, New Mexico, November 2-3, 1977. About 700 people attended the session and heard 15 nationally recognized speakers discuss the *Changing Times* in the nation's energy programs. The speakers represented environmental interests, government and the private sector. Their topics touched on many aspects of the energy problem—economics, development, environmental protection and federal policy. There was an opportunity to question some speakers following their presentation.

These proceedings were prepared from both tape and written recordings of the presentations. Every effort has been made to record these accurately and reproduce them here in their entirety. Also included are the questions and answers following each presentation.

Additional copies of these proceedings are available from the Bureau of Land Management, P.O. Box 1449, Santa Fe, New Mexico 87501 at a cost of $5.00 per copy.

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SOUTHWEST ENERGY MINERALS CONFERENCE

THEME:

"CHANGING TIMES"

KIVA AUDITORIUM
ALBUQUERQUE CONVENTION CENTER
ALBUQUERQUE, NEW MEXICO

November 2 & 3, 1977
9:00 o'clock A.M.

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P R O C E E D I N G S

MR. ARTHUR W. ZIMMERMAN: Good morning ladies and gentlemen. Welcome to Albuquerque and to New Mexico, The Land of Enchantment.

We welcome you also to the Southwest Energy Minerals Conference which is hosted by the Bureau of Land Management, and as David Brinkley said some years ago when he was reporting on a story about the Bureau -- "..whatever that is..".

This is the third conference of this nature. We've held them about every other year in different parts of the country. The purpose is to bring together persons from industry, the environment, the government, to discuss in a public forum the "Changing Times" the nation now faces in the mineral energy field. During this session we will hear from many experts. I think we are blessed with an agenda of some very prestigious speakers from all of the segments. Some of the speakers may express points of view which are controversial. Some of their views you may not agree with, but by discussing the issues openly we can all leave with a better understanding of the problems that we face.

I happen to come from the school of thought that believes that the United States has the ingenuity to overcome any obstacle once we get ourselves together, but it's that business of getting ourselves together that can be

very traumatic process.

This conference will be a success if through understanding we can move the energy mineral problem one notch closer to resolution.

Now, in case you don't know, or if this is your first trip to New Mexico, perhaps there are a few things you'd like to know about us. We first of all hope that your visas are all in order. This is The Land of Enchantment. It's a land of very vivid contrast culturally and ecologically. It's a land rich in mineral resources. Gold, or the hope of it, brought the Spanish to New Mexico in 1540. There has been progressive development of the mineral resources of this state since that time.

Today, major mineral deposits are being actively pursued on state, public lands and Indian lands. We have major deposits of uranium -- as a matter of fact, uranium is almost in the boom stage right now to the west of us. We have major oil and gas fields in the northwest and in the southeast. We have substantial coal deposits in the northwest. We have active geothermal heat and as far as some of the other minerals are concerned, we have a deposit of potash in the southeast which currently represents -- or production from those mines currently represents eighty-five (85%) percent of the United States production, as well as copper and other important mineral deposits.

Mineral revenues on the public lands alone in this State approach a hundred million dollars a year. You can see the mineral activities in New Mexico is big business and vital to the well-being of the citizens of this State as well as the Nation.

While this conference is directed towards the mineral side, we would hope that you have an opportunity to assimilate some of the cultural aspects of the State while you're here. Now, to that end, we have arranged a bus tour to Santa Fe and points north on Thursday for the wives and others that can't participate. We would ask that you sign up for that tour by 1:00 p.m. today at the registration desk. I can assure you that it will be worthwhile.

A few housekeeping items. If you will note the announcements on the back of your program, coffee breaks will be announced and will be served in the lobby. There is an excellent buffet luncheon that will be served by the hotel and instead of in ballroom A as indicated on your program, it will be down on the third level, downstairs. I encourage you to attend this luncheon so you can be back in time for the afternoon session.

The telephone numbers printed on the back of your program are direct lines to our conference support room which is directly in back of you. Messages that you may receive will be posted near the registration desk on a

bulletin board, as they are received, so look for them. Our support staff are identified by orange ribbons such as the one I have on my name tag and if you would,contact them for any assistance..

Also, we'd like to thank the Albuquerque -- the ladies of the Albuquerque Desk and Derrick Club who are here to help us out.

Smoking is in the outer lobby only and when we come to the point in the program where there are questions from the floor, there are two (2) microphones, one in each aisle. If you will please use those microphones in order that we can get a complete transcript. The young lady down in front will be recording the full conference and we would like to get all of the comments and all of the questions, but without the use of the microphones we are not going to make it.

Even though it has been said that New Mexico is a long way from heaven and very close to Texas -- (laughter) we hope that you all enjoy yourself here and our objective will be achieved if on the way home you say to yourself, this has been a good cause. If I or any of my staff can help you in any way, please contact us.

I would like to introduce now the General Chairman of the Conference, Frank Edwards. Frank is the Assistant Director for Minerals Management for the Bureau of

Land Management, so Frank, welcome, and please take over.

Thank you very much.

(applause)

MR. FRANK EDWARDS: Thank you, Art. We are very pleased to be here and that your staff has provided us with a good start with logistics and arrangements for this conference, and we thank you very much for hosting it, Art.

You will notice on the program that the Conference Chairman is listed as George Nielsen from the Bureau of Land Management in our Denver office and I am listed as the co-chairman. The conferences that have been held in the past that Art mentioned, the last one being in Billings, Montana two years ago, have all been the idea and the planning and the providing for by George Nielsen. It was something that George started with the Bureau in the California State Office in about 1968, and George has chaired all the sessions, has made all of the arrangements in the past with the help of the local offices who were hosting these. Illness has prevented George from being at this conference. He has many friends that are in the audience and he asked me -- I saw him on Monday, and he asked me to convey his best wishes and his greetings to each of his friends at this conference. I thought you also would like to know that at that meeting on Monday I had the honor of representing the Secretary of the Interior, Cecil Andrus,

in presenting to George one of the highest honor awards that the Department gives, and that's the Meritorious Service Award, for George's idea and dreams of establishing these types of conferences to provide a forum for meaningful exchange of peoples that are interested in the energy and minerals field, and it was a very high privilege to present this honor to George that the Secretary approved and I just have to say to you, it was a very meaningful experience for George.

This conference, of course, is at a time when there's a beginning of many new trusts with the new administration. This new administration has proposed many changes, new program areas, that it was felt were needed to resolve some of the problems of energy and mineral needs in our country. The administration has proposed a National Energy Bill and supported legislation to amend the Outer Continental Shelf Leasing Act, has provided legislation for change in the 1872 Mining Law and for consideration of mining in the deep sea. Those are all of interest to this group.

In addition to that, there are problems that we have today that face the entire nation of financing energy development, new initiatives in environmental protection, concern for energy's relation to food production and the federal governments relation to state governments. These are all topics that will be addressed during this

meeting.

We've had very successful meetings in the past and I'm sure that this will be no exception to our success in the past. We are very privileged to have as our beginning speaker, Assistant Secretary, Guy Martin to lead off this conference. I just want to say two things about Guy before he begins.

In his assignment as Assistant Secretary of the Interior, he exercises the Secretary's discretion and supervisory responsibility over three (3) major bureaus -- The Bureau of Land Management, Bureau of Reclamation and the Office of Water Research and Technology. Prior to his assignment, Mr. Martin served as Commissioner of Natural Resources for the State of Alaska which was a cabinet level position in the governor's office responsible for policy and administration of all state-owned natural resources in Alaska with the exception of wildlife.He has been a member of the National Outer Continental Shelf Advisory Board and the National Governor's Conference Energy Project and was on the Executive Board of the Interstate Oil Compact. Mr. Martin holds a BS degree and a Juris Doctor degree from the University of Colorado and the University of Colorado School of Law of Boulder, Colorado.

Guy will cover a number of topics, but some of the main things that he will discuss, of course, are the

problems that we face in our coal program, coal leasing program and some initiatives for revising the 1872 Mining Law.

I present to you the Assistant Secretary of the Interior, Mr. Guy Martin.

(applause)

MR. GUY MARTIN: Thank you very much. It's nice to be here and I can't help but compliment the City of Albuquerque which was one time my home many years ago. This magnificent center, for a person who travels around the country and sees a number of places, I don't think I've ever seen a nicer facility. I'd like to congratulate and thank you for it.

I'm in a bit of a dual role here because I first want to express my appreciation for being able to be with you and express some thoughts on behalf of the administration, but I'm also in the role of welcoming you because I'm a part of the organization that sponsors this conference and it is something that we think is important and something that we think can provide a vital opportunity for people from different perspectives and different orientations to share ideas.

Secretary Andrus wanted to be here. I think it's no secret that any cabinet level member of the administration has to make a number of choices about where to be at certain times, and Secretary Andrus is not able to be with

us this morning, due to the fact it was necessary for him to be in Washington to do some work with Congress during their closing days on a number of important issues, including the energy issue, but in any case, he regards this group and the topics that we're discussing of primary importance and sends his greetings and best wishes to us all.

It's good for me in many respects to be back in New Mexico. I've spent a good part of my childhood in this state, mostly in Santa Fe, although some of it was in Albuquerque, and I've not returned often since then. Few places really offer a better opportunity to discuss the kind of issues that we have to deal with here today. It's a land of almost unparalleled beauty -- a rich environment, although an environment with which one has to be quite careful -- similar to the one we have in Alaska in many respects, the desert environment and the Artic environment are similar. It's an area where the resources are also extremely rich. It's an area which has one of the richest cultural backgrounds of almost anyplace in the United States and one which I guess I identify with personally as a person who spent part of their childhood here.

It's also an area where resources form an overwhelming part of the economic basin area, one where diversifying the economy is difficult because of the predominance of resources and this is a problem that I've known not

only as a resident here but as a resident of Colorado and Alaska.

There are a lot of techniques that I could use to approach the statement that I want to make today, but I'm somewhat motivated by the fact that I'm meeting many people here for the first time and by the fact that the administration which I represent, although some nine (9) months old now, it's still a new administration in the early stages of events and proposals which are new, and in many cases, controversial. So I'm hopeful that you will appreciate and understand the approach I am going to use which I'll call for lack of a better word a "shopping list" approach which is intended to give you a current status report on a number of the issues which are most important to us all and which is intended to give you some perspective both on myself, on the department which I'm a part of and of the administration which I serve. The alternative that I rejected in favor of the shopping list approach incidentally you'll be glad to hear is a speech in which I made a series of broad policy statements in grandiose terms. I think most of you know what policy is. One definition I heard recently is that policy is a series of uncontrollable events which are subsequently related to one another and explained by whoever is in power at the time. Another statement, probably the best one I've heard about policy recently was delivered

by Secretary of Energy James Schleshinger at a meeting which I attended on coal which was attended by a number of capitol officials in the administration -- there were probably fifteen (15) people there. At the end of the meeting they asked is anyone wanted to summarize and Secretary Schleshinger looked around the room and leaned back and said, "Well, gentlemen, the policy has saved the Nation. You guys work out the details". We left the meeting and in the process of working out the details have worked into a number of areas that I think are important to discuss today. I think you are interested in what's current and specific and in the perspective that I might bring. My introduction made clear my own background. I'm a Westerner and I'm Alaskan and I was most recently the individual responsible for managing most of Alaska's vast natural resources. Oil and gas was predominant in my world at that time. Prudeau Bay as most of you probably know is a State oil field, although we tend to forget that sometimes and it is still in the oil and gas area that I feel most comfortable.

I don't want to dwell on that experience of my own, but I think it is perhaps somewhat valuable giving perspective at least the way I've heard some of these issues. I think it's fair to characterize myself as probably one of the leading critics of the Federal Outer Continental Leasing Program during the past three (3) or four (4) years. I

believe and still believe that that program is premised on goals which were unreachable and that people who actually had to carry out the program knew that they were unreachable. I think that it confused the leasing of resources with the actual production of those resources at a later time and I think it was carried out because of these reasons at a pace and in a way which was virtually guaranteed to anger and arouse the opposition of states and a number of other interested groups. Many of them with high legitimate interests, but on the other hand, as a state official that was responsible for doing in Alaska precisely what the Federal Government was attempting to do at the federal level, that is, to conduct an off-shore oil and gas leasing program where we believe our off-shore resources were probably as valuable as those of the Federal Government. I never opposed -- indeed I greatly support an agressive off-shore program. I thought, in fact, that the prior federal off-shore program was simply its own worst enemy. That it was a situation where although the goals of the Federal Government and the State Government of Alaska were almost the same in terms of moving into the off-shore area and attempting to have a viable agressive off-shore leasing program to produce oil for the Nation. We had a situation where a confrontation was almost forced by the nature of the program. I believe we have a substantially better off-shore program now. We've

had two (2) highly successful off-shore sales. We are working constructively to move forward both off the east coast and the west coast with new sales and the relationship with the states including the litigation problem that grows out of a bad relationship is in substantially better shape than it was a year ago or even six months ago in my view. I believe that in fact we'll have a substantially better off-shore oil and gas leasing program and one which will deliver substantially greater amounts of exploration and development to the Nation's benefit in a shorter period of time.

Now, the OCS Program is not certainly the agenda for the day, but it occupies a place of special importance to me and in my own experience it represents an area where cooperative progress has been made. The OCS program is also significant because it represents to me a theme that I want to discuss today in my remarks.

That theme is that an adversary relationship -- an aura of confrontation between government and energy mineral developers is not necessary, not wise, not in the interest of this country, not inevitable and not desired by this administration. I noticed that Frank Ikard, who I consider a friend, of the American Petroleum Institute, follows me subsequently on the program. Frank and I may not agree on what I've just said about the OCS program across the board, and we certainly don't agree on the OCS Bill that

the administration supports which is presently in Congress, but I do believe, and I think Frank would say, that it's both unwise and unnecessary to have those differences translated into an adversary relationship which is in itself a deterrent to improving our ability to develop mineral resources wisely.

The oil industry believes that the new OCS schedule, for example, is too slow, but coastal states look at offshore oil development very much the way New Mexico, Wyoming and Colorado might look at eminent power -- eminent Colorado, Wyoming and New Mexico coal development by the federal government. They think some additional type of planning, some provision for impact or some better environmental standards are necessary, and their interests are legitimate in their own mind, as those of the industry which seeks to develop those areas perhaps faster than is wise for national interest. This administration is going to continually seek a balance between those kind of viewpoints and will likely opt -- more than in the past -- has already opted more than in the past for the planned approach, the approach that offers environmental quality to a great extent and the approach which increases state and public participation.

It is also an approach, I would add, that has the opportunity to bring the problems that confront mineral energy development up front rather than after the fact when

the development is planned, it's somewhere down the tracks.

What is most important to me does not mean that we cannot go forward. I'm prepared to give some examples of what I mean. In OCS, returning to this for one last time, I believe, I sincerely believe that this administration will offer more offshore leases in a comparable period of time and see them develop further than the prior administration program could have possibly done. I believe there will be less litigation. I believe there will be better planning and there will be a more dependable theory developed. I say that with or without inclusion of the new offshore bill in Congress, although I believe it would substantially improve the situation further.

Oil shale, against the odds of those who chose to characterize the relationship of this administration's energy development as an adversary relationship, one which is based on confrontation and denial, the administration did not choose this black and white course with regard to oil shale, but worked, I think, rather closely with those who are proposing to develop experimental oil shale tracts in the western states where they have been previously designated. And, recently, again, I think against the odds and suspicions of many of those who would suggest this could not occur, approved the development of Tracts CA and CV in Colorado, which I'm sure many of you will agree were those

which were best qualified to be developed and deserved to have a chance to show what they could do. We believe, I believe it wise to see a large scale, and don't be mistaken that this is anything but a large scale test of of oil shale development to take place under stringent standards indeed, but standards which the companies who applied for those permits agreed were fair and were acceptable as a part of the test. I have personally, as I'm sure many of you have, unresolved questions in my mind about the over-all economic liability of shale development and I have even greater concerns about the water use and the reclamation aspects that accompany oil shale, but I feel that by attempting these experiments, these model developments, as we hope they will be, we can gain some of the answers to either resolve and put aside some of the concerns or questons, or some cases doubts that I really kind of have, and decide whether or not we have here the resource protection for the future that many people think and most people hope it will be. I think that most of all, you should recognize that that was a decision which was grounded, and working rather closely on a constructive basis with the people that wanted to move that project forward, and it's a process which was not cast in terms of confrontation between, at least this administration,and the people who want to go forward.

Still a third example that I mention at this

time is the example of the power generation plants which have been proposed in Utah and which have been proposed in many areas in the southwest and the western slope of the Rocky Mountains. In Utah, you're all familiar with the past history of confrontation, adversary relationships and indeed defeat for projects which have been proposed and resolved really in a bad manner.

At the present time IPP has proposed to build a large scale generation plant for electricity for Southern California and to do so in the southwestern corner of Utah in an area where it's simply unacceptable for reasons of its proximity to the national interest in park areas that are there. That judgment of unsuitability was reflected from the law by virtue of air quality standards. Nevertheless, rather than fighting out the battle over air quality issues there is at present a very constructive effort moving forward with the full cooperation and support of IPP and involving the Bureau of Land Management, the Bureau of Reclamation, the State of Utah, the State of California and a number of others. The environmental community and a number of others to look at a series of alternative sites which may be just as satisfactory. Look at those sites in terms of finding the land, the air, the water that's necessary to make that work. At the same time that that's happening, Utah Power, a company which has its own responsibilities to

the people of Utah, and which would fairly say if Utah is going to sustain large power generation plants, it ought to be for the people of Utah, rather than for the people of Los Angeles, is moving forward attempting to find sites that they think they need for the future. They've come to us with what I think is an innovative and constructive model for the sort of plan we should do in the future. They've suggested that we attempt to identify well in advance some of the decision processes that we go through pursuant to the laws that now bind us. Laws like NEPA, The Federal Land Management Policy Act, or others that we engage in identifying those areas which in most cases are regarded as satisfactory. My reaction is very affirmative. I think we can work out the details, I think we can work out a way to see that both IPP and Utah Power & Light are worked with constructively by the various -- not just federal, but also state and local governments, that have so much to say about both the needs and the standards which guide that development. I look at that as a very constructive example.

The point is that while some see those issues as adversary and suffer from, I think, illusions of confrontation in some cases. Others are not only willing, but are in fact spending time now working constructively to solve problems that we must all recognize as a new era.

Environmental consciousness and pressures on the few resources that we have.

One final example: It's commonplace to create the illusion that .there is dramatic competition between the Department of the Interior and the Department of Energy. In fact, there is a driving force which makes it impossible for those departments to get along together. The departments have different missions. The Department of Energy having somewhat a narrower single purpose mission to see that this country's energy future is protected and the Department of the Interior having a broad mandate with regard to management of public resources. The fact is that the relationship between the two departments has been extraordinarily good in my view. As the person primarily responsible for leasing of mineral and energy resources, I have been the person that has had to bear at least a large share of that relationship.

One of the most constructive things we're doing now is working out -- I think with some substantial agreement, a memorandum of understanding between the two departments by which we will set the energy production goals of this country, first on the national and then on a regional basis, and do so across a wide variety of resource categories, coal, oil and gas, geothermal and the rest. That work is going on quite progressively in relationship between

the two departments, given the fact that there are different missions, is very good.

One of the sad things that has come out of the public perception of a less than happy relationship is that user groups and I'm speaking directly to those of you who are here, have perceived they have a friend in one place and an enemy in the other, or that they have someone who is assigned to them in one place and someone who is not interested in them in another. That's far from the truth and I think -- and it's an appeal that I make, and it is this -- and I believe that the oil industry in particular, but also other resource production industries make a great mistake in not talking more and doing more with the Department of the Interior and concluding that their interests are best and solely represented by the Department of Energy. We're not in competition with them to have you talk to us, but I'm suggesting that your interests and the interest of constructively approaching a number of the problems that confront you in the present day would be much better resolved by spending more time talking with people like myself in the Department of the Interior.

Let me turn now in the same general theme to a issue which is even more timely and I think of great importance to people that are here and that is coal.

In view of the present strong committment

to coal conversion and a greater role for coal in our nation's energy future. The potential of coal as an energy source for our nation and the sad history of our present coal management program -- I think it is an area for opportunity for the people that are here are balanced. Let me say what sounds like a very controversial statement until you think about it. The United States has never had a comprehensive coal management program policy. It's simply a fact. The past leasing responded not to a program of over-all policy, but specific leasing demands and leasing demands turned out pretty clearly I think you can see, to be something very different. The demand for production or sale or consumption of coal. Witness to that, of course, is the seventeen billion tons under competitive lease undeveloped now and nine billion tons under preference lease applications. While those are all tough generalizations that don't dispose of the subject over-all, the federal coal program in the past -- even EMARS has not been carried into effect. EMARS was the first attempt to establish such a management policy and has now been thoroughly grounded by litigation.

Let me briefly report where we are now.

First of all, I think most of the people here are familiar with NRDC vs. Hughes. A lawsuit which has the greatest effect on the Federal Coal Program. Basically

NRDC vs. Hughes is simple. It's a challenge to the adequacy of the environmental impact statement which was written to support the EMARS' program. It said that the statement itself was inadequate and excessive impacts and went further to suggest that the program itself because it was ill defined would be very difficult to assess under any circumstances. Very recently Judge Pratt (phonetic) a District Court Judge in Washington issued an order which had profound affects on the coal program. Over the long term, that order demands that the Department of the Interior prepare a new programatic impact statement and it carries with it the heavy emphasis that that statement is to be successful. It must be premised on a program which is better to follow than the present program. Most of all, it demands in the long term that that EIS be the basis for a decision as to whether -- whether or not new coal leasing is necessary as opposed to simply assuming that it's necessary and moving forward to methods of leasing. On the short term, the decision has equally dramatic effects. While that new program or a new EIS or a supplemental EIS on the present program is being prepared, the Judge made it clear that no action could be taken by the Department of the Interior, quote -- "..directly or indirectly to carry out the existing coal program..". On the short term implications of the decision we believe we still need

substantially greater clarification of what the Judge meant. What he meant is interpreted at its strongest against any implementation of the present program. It indeed limits what can be done while the new program is developed.

Where do we go from here? The Secretary of the Interior has already made it clear that it's his desire to appeal that decision. Exactly how to appeal it, what aspects to appeal and how to proceed are still at issue. We believe that it may very well be useful to seek clarification from the Judge to try to expand and further define the ability of the Department to lease coal on the short term and to get further definition of what is necessary to deal with a new coal program in the long term.

The short term -- we intend to do as much as we can. The Judge's Order asks, directs, that we may not lease for periods over three (3) years and general term directs that we may not lease to increase the size of an existing operation but only maintain it. What it means beyond that is a matter of legal interpretation and one which we are dealing with now through the solicitor's office with the plaintiffs and with the court. We believe that there is substantially more flexibility necessary -- in fact, that's the reason that any chance at the negotiated settlement broke down and we believe that we may be able to get greater flexibility and we're working on it.

In the long term -- we believe the court, not only because the court said so, but we conclude so ourselves, that it's necessary to develop and to find a better and more responsive Federal Coal Leasing Program and we believe it's necessary because of the Court Order to write either a supplemental or a new programatic EIS on that program.

I told the Senate Energy and Natural Resources Committee last week that given the need for a short period of policy development leading up to that program to be completed in the middle of next spring -- given the time necessary to compare a new programatic impact statement that will survive litigation tests and given the time to make a decision after that EIS is done as to how much leasing and where leasing ought to be done, it would be mid to late 1980 before new leasing under the new program could take place.

Let me give you some figures to give you some perspective on those figures. In 1976 just short of forty million tons of coal were produced on federal land. Using only leases that presently exist and basing my figures only on mining plans which have presently been submitted or mining claims which could reasonably be expected to be submitted during the next two (2) to four (4) years, we believe and I should say basing it also on completion of ten (10) regional EIS's which are now in progress and which will

begin to be completed in August next year, and all be completed in six (6) or seven (7) months after that, we believe that federal coal production can increase from just under forty million tons last year to sixty-five million tons in 1980 and a hundred and sixty-five million tons in 1985. That's without new leasing, but assuming that new mining plans -- that the existing mining plans would be processed, that new mining plans would be submitted and processed.

This is not the whole picture, and there is, of course, an uncertainty involved in where we must go beyond this figure. But, it does mean that there will be a three-fold increase capable in federal coal production by 1985. At the same hearings in Washington, Jack O'Leary of the Department of Energy agreed almost across the board with the figures that I just gave you and suggested in addition a figure that is more precisely within the capability of the Department of Energy at the present time. He indicated that as much as sixty million more tons of federal coal may be necessary beginning shortly after 1985. This coal will be used not only in the west but would provide for the beginning of some coal importations to other areas.

It is this figure, sixty million tons -- whatever that figure may ultimately turn out to be, I would point out that even the Department of Energy believes that

that figure is one which has yet to be defined. But whatever that figure is, it is that figure to which new federal coal leasing ought to properly be addressed. That figure could conceivably be virtually no new leasing in terms of the overall demand for volumes of coal. It could be more than that, but as of this week, the best estimate that could be made by Mr. O'Leary is sixty million tons. If we take that figure and we assume that beginning in 1985 or shortly thereafter that this additional production per year is necessary for federal leasing, and figuring sixty million tons out of approximately a forty-year base, it means that in the period 1980, '81 or '82 the federal government ought to be prepared to lease some two and one half billion tons of coal.

Now, for those of you who are familiar with those figures, I think you will agree with me that that is in itself a reasonably modest leasing program, assuming that we've designed a program and had a policy that can support it in terms of balanced resource use. It flies in the face, I think, of figures that indicate either that there will need to be a massive onslaught of leasing and in the alternative that there need be tremendous fear on the part of western states of an impact that they cannot tolerate. We believe the kind of program that's called for based on present figures can be, if necessary, attained during

the early part of the 1980's.

There is a second major target in new leasing which I don't want to leave out because I think it's of extreme importance, and that is not to respond simply to gross production demands for new coal production because it's anticipated that it will be needed in new markets in a generalized sense. There is, in addition, a tremendous need which exists today, and which will certainly exist in 1980 or beyond, to do the kind of precise targeted leasing that fills in holes to make up logical mining units, to make -- to lease to get around bypass situations, to lease to enable operations to continue operating where they may otherwise have to leave for conservation purposes, or to make operations which are marginally viable for startup purposes suddenly viable. Those are the problems that are perhaps toughest, and my remarks in this aspect of the coal issue targets are directed at a major misconception about the way that this Administration thinks about coal, and that misconception is that what is leased now is automatically enough.

I don't agree with that. I don't agree with it for the reason that it is simply a solution which is too general to a problem which has many specific elements. The fact is, that what is leased may not be of interest to development. What is now leased, the seventeen billion

(17,000,000,000) tons competitively and the nine billion (9,000,000,000) tons under preference right applications may not -- was not leased at that time under a program which sought to achieve balance environmentally to respond precisely to leasing situations, or which followed a substantial land claim process. There may not be an interest in developing any part of that coal. Much of that coal cannot be developed without creating unacceptable environmental and economic burdens. Those leases leave out many people who badly need new coal now, and those include many local utilities, local governments who were not able to participate in leasing previously, they include people who will be interested in converting to coal but have been unable to do so in the past, and they include a number of as yet unidentified local or regional needs where they will be unable to buy coal resources in a good area to develop.

As a result, it seems relatively certain to me that even with seventeen billion (17,000,000,000) tons under one leasing program and nine (9,000,000,000) under another, and the increasing production figures that I have cited to you, that there will be, on some basis, a necessity for new leasing, and there is an overwhelming necessity for the federal government to develop a sound approach to a new leasing program based on understandable

shared policy. That new leasing will be stronger than ever before, in my view, because it will be, if the Administration has its way, linked to production rather than to a simple demand to put more resources under lease. It will be related to sound land use planning, where there will be a balance between the demand for coal development and the alternative values that are held by grazers, ranchers, community development, environmentalists and other issues in the areas where coal is predominant, federal coal is predominant. It will be capable of being mined because of its location in an environmentally sound way, and will, in fact, be mined, I think, more expeditiously because we will avoid, again, some of the controversy up front.

I think there should be, at this time, little doubt what about the fact that Congress has pretty well staked out what the rules are for coal and other resource development in the air in which we are now living. And, although it still appears to be controversial in some quarters, a quick look at the history of coal, I think, is very interesting in terms of understanding the standards which Congress and past administrations, to some extent, have felt necessary for federal coal leasing. In 1969, the Mine Health and Safety Act was passed. In 1970 the Clean Air Act was passed. In 1975 the Coal Leasing Amendments

was passed. In 1976, the Federal Land Policy and Management Act was passed. In 1977, the Surface Mining Bill was passed. There is substantial public support for these acts. Most of those were opposed by prior administrations, but there is, nonetheless, broad public and Congressional support for those acts, and I think it is intended that they set the stage for the kind of program that we have to have.

In the past, I am concerned that the issues were presented, as either these laws were passed, or we would not have enough coal or oil. The present Administration believes that these laws, and a respect for what they represent, do not contemplate a choice between having the laws and having the resource, but rather have the capability to generally and comprehensively improve the situation with regard to their development.

I have mentioned coal, offshore oil, and oil shale. Together, they represent a great deal about what the present Administration believes, and about the way in which it will approach mineral policy, but there are some important thoughts to add to that, and I would like to do that now.

Much concern has been raised about access to mineral lands, both fuel and non-fuel minerals. I lived with this issue personally in Alaska, where various actions

threaten access, and threaten prospecting and exploration, but where the nature of the resource and the potential of the resource, specifically, was largely undefined in the area. Alaska is, in a way, a microcosm of the rest of the mineralized portion of the country where various actions threaten access, but where many believe there is, as yet, not enough definition of the subsurface resources.

A number of specific issues highlight this problem, and I would like to at least mention some of those, and deal with them briefly.

First, and I guess it couldn't be anything but first on the list, is the Amendment of the Mining Law of 1872. It is both important, and extremely controversial. This Administration has taken its position on that issue, and while there is certainly no way that we can resolve that issue, or get agreement here, I think it is important that you understand one another's perspectives and the problems that we see in moving forward with that for the present law.

First and foremost, I would point out that while this law is controversial, it is -- the amendments suggested by the Administration are controversial -- they are hardly a new idea. They were not invented either by Cecil Andrus or by President Carter. They are an idea -- they represent an idea which has existed for years, and

they represent a movement for reform in the Mining Law of 1872, which has existed for decades in this country. They represent, I think, specifically, however, an idea which has reached an appropriate time in our history for they -- for the amendments are in keeping with many of the ideas which are reflected in other laws which Congress has seen fit to pass.

The public simply has altered its view of the way in which public lands ought to be used. There is a demand for greater control of those lands in the trust relationship that the federal government has for those lands. There is a desire for greater planning, more knowledge of what will be done with public lands, and as Congress indicated in the Federal Land Policy and Management Act, there is a desire to hold those lands and to manage them, but to use them and produce from them without converting title away from the federal government, unless specific circumstances warrant it.

The Administration proposal, we believe, responds to those sorts of ideas which we believe are very contemporary, and we believe that it responds to a change in attitude, perhaps not precisely in the way in which even those who hold those attitudes would want the response to be, but it does provide a more predictable and rational system with planning environmental control with regard to

hard rock mining. We believe it will ease substantially the pressures for large withdrawals to protect areas against mining. We think in many respects the law has the capability to increase where it is most necessary, access for mineral activity, rather than fostering a series of battles over withdrawals from mineral activity, as is presently the case. And we believe it will end the much-criticized process of patenting lands where the guarantee or necessity of patenting in the name of mineral production is simply not essential.

And it will also provide, in our view, a long-overdue and much-needed system of royalties, of return to the Government for the taking of its public resources. One half (1/2) of those revenues, incidentally, being returned to the states. While this is open to debate, I want to point out that the Administration, in submitting any proposal, submits it because it takes an initial position, and is more than willing to submit its ideas to debate, open scrutiny and discussion with those who have differing ideas. We may very well not have the best answer to a reform of the mining laws, but we think it's time that the issue is fully and fairly debated in Congress, and we reach a resolution that can let us move forward.

To take a couple more examples quickly, let me give you an idea of the way in which the Department is

treating similar issues of access and withdrawals. The Federal Land Policy and Management Act is a large and extraordinarily demanding Act. Most of you here have worked with it, and I think you appreciate the nature of the burden in a short time frame that it placed on the Bureau of Land Management and Department of the Interior. Among the most controversial and demanding of those provisions in the Act is the provision for wilderness review and designation. While I don't want to discuss that in detail, let me give you an idea of at least the policy guidance under which we are proceeding, and asking BLM to proceed.

It is, of course, the wilderness provision, a new law and it has in it, for those of you who have read it, some of the famous Congressional vagueries which make it possible to pass, but virtually impossible to interpret and enforce. Yet, when interpreted by the agency, it is subject to attack from both sides. This is no different with the wilderness provision than it is with a number of others, and we are already being subjected to what I call post-passage interpretation. Letters, questions and other representations of what they meant when they passed it. Of course, no one can agree now what they meant, as they could when the bill passed. We are, however, agreed, I think, on one major point of virtually every interest that is represented, and that is to not let the

concept itself become its own worst enemy. To use the wilderness concept as espoused and supported in that Bill very strongly, in a way which is flexible and which is responsive to a variety of alternative needs while carrying out the basic demand to study areas for wilderness, and move those areas where it is appropriately necessary, forward for resolution by Congress. Only Congress can establish a Wilderness Area.

We are going to focus on a rapid review of Wilderness Areas, to do what I would call -- release as many areas as possible from jeopardy at the earliest possible time. We believe that that is both in the interest of the wilderness concept itself, and in the interest of those who have other public lands interest on areas which are not appropriate for wilderness. Within a very short time, the Bureau of Land Management will be promulgating a series of proposed -- underline <u>proposed</u> regulations -- to deal with this issue, and those standards which would be partially policy guidance, partially regulations, will be open for public review as a way of beginning the process by which we initiate the wilderness review.

Let me turn to another area very briefly. One about which is not familiar to me, but about which I think you will hear more, and that is the issue of the seventeen

V two (17 V-2) lands in Alaska. It's an issue, of course, of which I am fairly familiar, but I mention it here only because I think it reflects something very important about the way in which this department wants to deal with mineral issue. In Alaska, at the time that the Alaskan Native Claim Settlement Act was passed, the provision was put in the bill to designate eighty million (80,000,000) acres of land in Alaska in national interest categories. Parks, refuges, wild & senic rivers and national forests. That provision has now been around for some five (5) or six (6) years, and the time for action is now.

There are various proposals, some of them proposing over a hundred and twenty million (120,000,000) acres in this designation, and there is a tremendous amount of controversy about the amount of mineralized potential land that will be "locked up" in this process. Some minerals and some interest groups have taken the perspective that this is the last great chance to put away as many acres of valuable natural areas in Alaska as possible. It puts the Department of the Interior as absolutely committed to the 17 V-2 process. We believe that there are vast -- indeed vast areas of Alaska which can and should be put into categories where they are managed for more specific purposes, and where use is somewhat

restricted. At the same time, we werè painstaking in our efforts, and I would defend in specific our efforts to draw our values with the utmost care, to take out those areas where there was high mineral potential, and in doing so, we rely very substantially on work done by the State in a very detailed nature to indicate those areas where there is agreement of possibly wide spectrum of resource managers and users, as to where these areas were. It may or may not be that the Administration Bill will survive, there are bills certainly on both sides of it. Bills which ask for far more land in parks and refuges, and bills which certainly ask far less. But I would urge each of you, before you make a decision on an issue like that, to consider not only what the Department did, but also consider the approach you use in trying to identify the key areas which could be isolated and taken out from the designated areas. I think it is a process that will continue to follow in wilderness areas, and in new parks and refuges.

And finally, let me say just a quick issue about another thing that is perhaps not as well known, but very important, and that is the need for inventory and withdraw review as mandated under the new Federal Land Policy and Management Act. Congress, as you know, felt that it was setting up a new system for managing, and setting policy for federal lands. As a part of that, they

wanted to see an inventory of those mineral resources which were present on federal lands prior to the time that many decisions were made, and they wanted that to begin soon. And they also wanted, at the same time, the beginning of the review of the withdrawals to mineral access that were made on public lands.

At the present time, that occupies a spot on the schedule for BLM's implementation of the Organic Act, and work is already moving forward on that. And, during the middle part of next year, we will begin to share with the public the method by which we intend to conduct that review of withdrawals, and to conduct that inventory.

At the same time, I think most of you are aware that there has been a substantial amount of talk recently about what is called "non-fuel energy policies". A number of Congressional spokesmen have been leaders in this regard, and there has been a great deal of work moving toward the initiation of the review of federal non-fuel mineral policy, and I think I can tell you this morning that within a very short period of time, I hope that within a week or ten (10) days, the President will be announcing the initiation of that review to last approximately one (1) year, and to comprehensively deal with the wide variety of policies that affect non-fuel minerals in this country.

And finally, let me say a word about water.

There is no question but that among the environmental factors, water, along with perhaps air quality will be the biggest limitation to energy development and mineral development in this region, and throughout the west. In many cases, this entire issue of water is being set up as a confrontation which I urge you to avoid, a confrontation between agriculture, and energy and minerals, a confrontation between the west and the east, or a confrontation between human needs versus energy and mineral production.

I firmly believe that that is not the case, and should not be the case, but that we can surmount the problems of water and air quality, but particularly water quality, by a sound, early approach to avoid competition for water and confrontation over water in favor of a planning and management system which can work within states and between states. To reach that kind of result, the President's National Water Policy Review has a number of elements which relate to that, and for those of you who feel that you are in a sector where you need to spend a great deal of time on the water policy review, I would urge you to rethink your position, and look carefully at ways to improve both Federal and State policies for dealing with water as it is related to energy. At the same time, the President has directed, and I am carrying out a review

called the Water for Policy -- or the Water For Energy Inventory. And while it is a much less ambitious effort, it is a review of the work that has been done over the past few years dealing with the issues of water for energy, and it is a review which I think will involve very shortly a wide spectrum of the public in hearings and comments on the sorts of needs that exist. The clear, early findings from that review, with some very important exceptions, there is reason to be optimistic that water should not be a problem for energy and mineral development if we plan and manage properly.

And finally I would just say that we are dealing on this same issue -- on an issue-to-issue -- this same problem of water on an issue-to-issue category, and would cite you back to the example where we are working with IPP and Utah Power and Light to help them find the land, the air and the water to solve their problem, and it is an effort, which for those of you who are here, have similar problems, I would volunteer time and manpower available to work the same way with each of you. I think that is probably a good point to stop, and perhaps it would be best if I stop by telling you, and maybe for the last time, one of my favorite stories about what it is like coming in and taking over a job like this for the first time when you are brand new, and particularly where you have

come as I have, to become a new Fed -- only six (6) or seven (7) months ago I wasn't with the Administration in the first couple of months. I was happily situated in Alaska as a State Official where I had full reign to literally destroy the Department of the Interior on almost every program. Frank Edwards here was one of my favorite targets, and when I first came I heard a story that made it very clear what it is like to come in as a new official to the kind of situations that we face, and I would like to share it with you.

It seems that a young fellow went out in the small southern town -- say it's in Georgia -- and he was a farm worker, and he had come in on a Friday night and he wanted to celebrate, and he had his pay in his pocket, and so he went out during the night and he got drunk. And during the night when he got drunk, he got very rowdy and got in a couple of fights, and made quite a spectacle of himself, and he came in about one (1:00) o'clock in the morning to his hotel room, and must have gotten in bed and somehow to light a cigarette, and managed to start a fire in his room, and the entire hotel burned down. He escaped, still pretty well drunk, and was immediately arrested and taken over to the jail and charged with "Drunk in Public" and "Malicious Destruction of Property", and the next morning about eight (8:00) o'clock the judge

came in for Saturday morning arraignments, and it was a tough, crusty old Federal -- or County Judge, and he came in and he looked at this disheveled young man, and he says, "Young man, you're in a lot of trouble. You've done a lot of damage here, and you are charged with Drunk in Public and Malicious Destruction of Property. Now, how do you plead?" And he said, "Well," straightening himself up and trying to make the best showing he could, and he decided to make a good approach, he said, "Your Honor, I am going to be honest with you," he said, "it's true, I came in and I was having a good time, and I did drink a little too much, and it's true, I was drunk in public, and I'm guilty, but" he says, "as to that other charge about the fire at the hotel and everything," he says, "that damn bed was on fire when I got in it."

(Laughter.)

Thank you, very much.

(Applause.)

MR. EDWARDS: Thank you, Mr. Secretary. The press of time is going to limit the period for questioning, so I am arbitrarily going to limit it to two (2) questions. Any questions? Here is one right here.

MR. HEEDLER: My name is Bud Heedler, from Artesia. It's about the discussion of your presentation, you mentioned quite heavily the whole issue of planning

and management, especially at the Federal level. Like yourself, I was raised in Alaska. I have spent the last fourteen (14) years in the Southwest. I am quite concerned about the input that sectors other than the federal government have in this planning and management, and I was wondering if you might illustrate just a few moments on how does private industry, how does the individual become part of the process? Is it a real process? Is it a -- we hear a lot about public hearings but the ones I have attended, anyway, you don't really get the public's input. What are the actual processes that are part of your whole program?

ASSISTANT SECRETARY MARTIN: Good question. It's a tough one for anyone to answer. I think that the best I can say, and I guess my perspective as of a few months ago is about the same as yours, and I hope it hasn't changed too much. I think our problem now is that most of the issues that we have to deal with have been translated so heavily with the national issues that there is a demand to deal with issues in a broad, sweeping sort of way. I don't applaud that, in fact, I think we ought to resist it, and one of the reasons that I dwell on the idea of the work we are doing in Utah now to resolve the siting of these large power generation facilities is to indicate that what's going on there is almost totally within the

hands of the people that live in the area. We have -- I played a role in that in that I tend to think of the IPP, Utah Power and Light, Bureau of Reclamation, BLM, State of Utah, environmental community as a flock of sheep who must sort of continually be kept moving in one direction, but who should not be directed to do anything. They have to find the answers. But beyond that, the work that they are doing and the choices that they make will almost certainly have to be made at a local level if they are to avoid litigation by a disinterested party. So I suggest that motto as one that is very helpful in an individual situation.

With regard to the kind of planning that is going to take place, let me take an example I know well -- the BLM Organic Act, the Federal Land Policy and Management Act: all of our regulations are going to be put out for public comment, and each of those regulations will have in them a strongly -- I'd better not say "each" -- I don't know if that's true -- I think that each of them will have a strong local or state component, which is largely in control of the makeup of the substantive nature of the decisions. In the case of grazing, for instance, we are going to have district grazing boards, as well as district multiple use groups, so that both the multiple use decision -- in other words, choosing which uses are going to be appropriate on which federal lands, will be,

I think, highly impacted by those district multiple use boards, and in the terms of one specific and very controversial issue, grazing, that way that that issue will be treated locally -- will be handled locally.

Now, that is the kind of approach that I see is working. There is obviously a much longer answer to your question, but that's the kind of thing. My own immediate perceptions, just very quickly -- a very interesting thing happened, historically, and that is that when the Civil Rights movement was on, and the liberal cutting edge of an issue was the people that wanted to greatly expand Civil Rights, they looked to the federal government to resolve their issues, and so there was a tremendous emphasis on a federal, national approach to that issue, and perhaps it was well-placed. But, looking now at the same kinds of issues which are now mostly in the environment, energy development areas, I find that the tide is turning, and that the much stronger demands, the much stronger alliance, and it is the one that I feel, in spite of the fact that I am a six-month Fed, is to not let the federal government do the dictating. To let it be done at a local level and national level, so there is kind of a shift in public attitude, which I think is good.

MR. EDWARDS: There is a question over here?

MR. BUNT: Yes, I am Rusty Bunt (phonetic),

from March Mineral Corporation. Mr. Martin, when do you believe that the Department of the Interior will have a little bit better definition of the judges' intent with --

ASSISTANT SECRETARY MARTIN: I'm sorry, I missed the first three words. You thought they should have a better --

MR. BUNT: No, I am wondering when the Department will have a better definition of what the judges' intent is, or the definition of short term --

ASSISTANT SECRETARY MARTIN: We hope within the next week or ten (10) days.

MR. BUNT: O.K.

ASSISTANT SECRETARY MARTIN: Let me say that one of the problems with that is that it is not so much of us sitting down saying what we think it says, you know, what we think it says is as favorable to us as we can possibly interpret it. The problem is how we get that defined so that we can take action on it, and there is three (3) choices. Either we think we are so right we just charge ahead, and in one case I should point out we have done that, and that is the case where we have now directed our regional EIS folks to begin including the consideration of preference rights lease applications in their regional EIS's. That represents a pretty -- you know, saying we think that is what the decision means. The second

way we have to deal with it is to go to the judge and get a Clarification Order. That takes a month or six (6) weeks, and the third way is to sit down with the plaintiffs and see if we can agree with them on what some of the things mean, because we feel that they agree with some interpretations, then we won't have problems with the others. So that's what we are working on.

MR. BUNT: Thank you.

MR. EDWARDS: My Boss says he would like to take more questions and less coffee breaks, so we will have another question over here.

ASSISTANT SECRETARY MARTIN: I am not totally accurate on some of these national things, and I let people get me.

MR. WILLIAMS: My name is Gordon Williams, and I am with Coastal States Energy Company.

ASSISTANT SECRETARY MARTIN: Yes, sir?

MR. WILLIAMS: I have a question which is related -- it addresses the specific issue -- one that I believe is a problem, and that is the short term criteria on coal lease applications, and as you know, Mr. Martin, I have had an application on file for more than three (3) years, adjacent to our coal mine in Utah, and for the past year and a half that application has been at the Washington level, and I fear is just lanquishing, and half of that

year and a half, or nine (9) months was admittedly previous administration, but now nine (9) months in this Administration, and six (6) months of that was prior to the new criteria on July 25, which threw some more confusion our way, and then it was a couple of months before Judge Black's decision in September, and now we are even more confused, and we are concerned with the day-to-day operational production safety and conservation issues. It isn't something that we have to solve next year, it is what we are -- this afternoon -- do you have any advice for us on whether there is going to be anything forthcoming in weeks, or months, or years?

(Laughter.)

ASSISTANT SECRETARY MARTIN: Let me first respond to the charge -- first of all, you are right, and I think your characterization of the time period's breaking up was very fair, and to the four (4) or five (5) months which preceded the Court Order, I can only say -- plead guilty. There were, I guess, other things, that when starting out the Administration took precedence, but you are absolutely right. It should have been acted on, and I can only say that that is an absolutely legitimate charge. With regard to acting on the Court Order, we have to live with that Court Order, and I think you know the answer to the question. We have spent quite a bit of time,

I have spent personally time with your folks dealing with this issue. We think that your specific application may be one that fits into the criteria which may be permissible under the short term, and what we have now done is ask BLM to try to characterize those, of which there are only less than a dozen, so that we can make decisions on them. So, if it does, and it's coming by an adequate environmental statement, which in your case, I think it is, we can move forward right away. If it doesn't, you are simply bound by the Court Order, unless we can get it changed or clarified, and I can't change that.

MR. WILLIAMS: Thank you.

MR. EDWARDS: Any more questions?

ASSISTANT SECRETARY MARTIN: Thank you, very much. I anticipate being here for a good part of the day. I look forward to meeting you. Thank you.

(Applause.)

MR. EDWARDS: O.K. We are running short of time, and we are asking you to be back in here to start at ten thirty (10:30). There is coffee outside. Please be back in your seats within ten (10) minutes. We will now take a ten (10) minute recess.

(Whereupon, a brief recess was taken.)

MR. EDWARDS: All right. Let's go back on the record now, please. When you ask questions, please come to

the microphone and please state your name and who you represent clearly, and if you have an unusual name, please spell it for us, so the Reporter can get it.

Our next speaker, Mr. Charles Gentry, is the Chief Legislative Assistant to Senator Pete Domenici, your own Senator from the State of New Mexico.

He has served in this capacity for five (5) years, and has been a principal Staff Assistant to the Senate Budget Committee. Prior to this post, Mr. Gentry's distinguished career included two (2) years as Director of the Office of Special Projects, U.S. Environmental Protection Agency. In 1971, he was a White House Fellow and served as Special Assistant to the Attorney General.

Mr. Gentry served in the United States Army for ten (10) years as an Aviator and Engineer. He was wounded in Viet Nam and medically discharged after receiving the Purple Heart, the Bronze Star and the Distinguished Flying Cross.

Mr. Gentry received his Law Degree from Texas Tech University, and his Civil Engineering Degree from the Missouri School of Mines and Minerals. He also served as Law Clerk to U.S. District Court Judge Howard Woodward in Texas.

As you can see, Mr. Gentry has a very outstanding background to speak on the subject that he is

going to speak to us today. Mr. Gentry.

(Applause.)

MR. CHARLES GENTRY: Thank you, Frank. Can everyone hear? How about in the back -- way back there? Can you hear all right? Is it too loud up front?

VOICE FROM AUDIENCE: It's just right.

MR. GENTRY: Just right? Well, we will proceed, then. As indicated, I am here taking Senator Pete Domenici's place. Pete couldn't be here today, and he extends his regrets and he sends his best wishes for a most successful conference on energy and minerals.

Naturally, that is a very timely subject, and one of the reasons that he couldn't be here is because pending in the Congress tomorrow are several conferences between the House and Senate related to these very subjects, more on the energy side than on the mineral side.

My task, or my objective this morning is to present the status of pending legislation in the Congress dealing with these two important areas.

The Congress right now is really, really kind of tied up on energy, and I thought that the editorial cartoon in this morning's <u>Albuquerque</u> <u>Journal</u> was pretty much on the point. For those of you who haven't seen it, it depicts President Carter sitting in his rocking chair knitting on some kind of a towel, or sheet, or some kind of

a fabric that on it says, "Energy" and there are two playful little cats running around throwing his yarn all over and getting him all tangled up in it, and those little cats are entitled "House" and "Senate". And that is the opinion of a lot of people, that the President has put forth the comprehensive energy plan which may not be all that great in all respects, but that the House and Senate have kind of got it all tied up in a great big ball of yarn.

Well, opinions depend on kind of where you are coming from in that regard, I would like to tell you a little story. It seems this young lady went to -- she was feeling poorly, and she went to the doctor for examination and the doctor gave her a pretty thorough exam and at the conclusion thereof he announced to her that probably the problem was that she was pregnant. She was rather indignant about that, and she said, "Well, I would like a second opinion on that." And he said, "All right, you are ugly, too."

(Laughter.)

So, the opinion about what the situation is kind of depends on where you are coming from, and how you are looking at it.

Now, the Administration likely feels that it has put forth something that Congress ought to take and consider very carefully, deal with judiciously and with

speed, and try to address the energy situation that has our country all tied up, much as it is presently all tied up now with the House and Senate goings-on.

There are legitimate concerns, and very many tremendous differences about how we ought to approach solutions to the energy problem, whether you call it a crisis or a problem, or a situation, or however you describe it. Those are legitimate differences, and reasonable men have them, and the right, and they will differ on how the solutions ought to be approached.

I have a prepared text here which runs several pages, and I want to dispense with that. I brought it along just to verify that -- just to confirm that I did do a little preparation for the meeting, for the conference, because I have always tended when I have been sitting out there and someone comes to the platform and says, "I'd really like to do this in a question and answer format, so you can get across to me those things that are on your mind, and those things that are bothering you." I have always thought, "That jerk. He didn't prepare for this. He just came down here and he is going to let us do the work and he is going to roll off a few answers." But I have -- I do have this prepared text which will be in the proceedings, and it is a rather -- I modestly say -- an up-to-date summary of what the House and the Senate have

done, and where we are at this point with relation to the President's energy package.

As you know, the President, on April the 29th of this year, submitted his energy package to the Congress, along with the energy statement for the entire nation to consider. Now, in that energy package, the President announced that there were certain objectives that the energy package, the National Energy Plan, as it was called, was calculated, was designed to achieve.

The first objective is an immediate -- what he described as an immediate objective, and that is to reduce the U.S. dependence on foreign oil and the vulnerability to supplying the Russians.

The second is a medium-term objective, to keep U.S. imports sufficiently low to weather the periods when world oil production approaches its capacity of limitation. The Administration figured that there would be a time that wasn't too far in the future when world oil production just couldn't satisfy the world demand for oil, and that is what is meant by "capacity of limitation".

And third, the long-term objective was to have renewable and essentially inexhaustible sources of energy for sustained economic growth.

Now, in order to carry out, to achieve, to accomplish the objectives of the Plan, none of which anyone

could really argue with, the President cited some salient features, and he outlined those very specifically, and in great detail.

First: conservation and fuel effeciency.

Second: rational pricing and production policies.

Third: reasonable certainty and stability in Government policy. There's a good one.

Fourth: substitution of abundant energy resources for those in short supply, and

Fifth: the development of nonconventional energy technologies for the future.

Again, essentials, salient features, however you want to describe it, components of the plan that nobody could seriously argue with. But when you get to considering the mix of strategies, of policy decisions designed to achieve those objectives, to incorporate those salient features into the Plan, then you get to where it urks. So the President sent up a package that was heavy on conservation and fuel efficiency, and included in that was a gas guzzler excise tax. I am going to whip through some of these. A standby gasoline tax. A tax credit on conversion of residential dwelling places to achieve energy savings. Some for business, of the same kind, only a lower rate. Then a complex program of utility reformers. There is all

these fall into the general area of conservation.

Then the President also emphasized the need to convert to coal, particularly for utilities and industry.

In nuclear, the President admitted that there was a place for nuclear energy for some short time in the -- in our energy program, but that it should be limited to live water reactors.

On oil and gas, the President's Plan is based on the proposition that oil and gas supply -- domestic oil and gas supply is kind of -- is not really affected by the price at which at least its production and its increase in availability of supply, and it's not really all that much affected by the price that producers would receive for gas and oil.

Pricing policies for gas and oil -- for gas, we want to continue the federal control, or interstate, and extend it to intrastate, and set the limit for new gas at a dollar seventy-five ($1.75) per thousand cubic feet.

Oil, he wanted to have what is called a "Crude Oil Equalization Tax" which would apply a tax to the control price of oil that would be equal to the difference between the control price of whatever category of oil it was, and the world prices of 1977.

This Crude Oil Equalization Tax -- some part of it to be rebated in some manner to customers, consumers,

and specifically to users of home heating oil in those areas of the country that -- that rely heavily on home heating oil.

I really don't have time to, at this point, offer critical comments about that any further, and besides, I am kind of in a staff position and not really -- have the wherewithal -- the latitude to make a policy statement since I am not in a policy-making area, and I hope that sometimes I do influence my Senator.

Now, the House took the package and on July the 5th -- excuse me, on August the 5th, passed a tremendously large bill encompassing all of the elements of the President's Plan, almost in the same form sent to the Congress. The gas guzzler tax was changed a little bit, the standby gasoline tax was knocked out, and there was a few other variations, but by-and-large, it was the same plan sent to the House and sent to the Congress by the President.

This work was done by an ad hoc energy committee made up of a large number of Congressmen from various committees which would have had jurisdiction if it were broken up into several bills. That Bill, Number HR 8444 was sent to the Senate, and the Senate then broke it down into five (5) other bills. The Senate is presently -- well, the Senate now has reported out all those bills, and they

have all passed the Senate, so we are now in conference on all those bills. The conference is in tune with the theme of this conference, "Changing Times". It is the first time that a conference has ever been held this way in which the House sent the same House members to all the conference meetings, and the Senate members rotated, depending upon what bill is under consideration.

It is unusual. It has produced some problems in that it requires so much time by the same members of Congress and the Senate to consider these measures. The first bill that the Senate produced and was considered in conference was one that they thought they would have relatively little trouble with, the Conservation Bill, which for the most part seemed to be non-controversial. But it did have in it the question of the gas guzzler tax, or ban. The Senate may consider it a gas guzzler issue, the large cars that consume above some accepted level of fuel, instituted a ban, or recommended a ban, an outright ban, which by 1980 would start at sixteen (16) miles per gallon, and says no car could be produced that consumed more than twelve -- more than sixteen (16) gallons -- miles per gallon, and that this mileage rate will increase by one (1) mile per gallon each year until 1985. Well, that was a different approach, and they are trying to work that out right now in the conference. It is interesting

that this last week the Senate refused to apply the tax when the energy tax bill was on the floor, so we had a difference of approach between the House and Senate on this very emotional issue of the gas guzzler -- what ought to be done with the gas guzzler.

On the other major issue, utility rate reform, the House reported -- the House version of the bill was basically what the President's is, which prohibits the sale of electricity to large users at more than cost, but allows states the option to allow it to be sold to individual residential users at below cost. The Senate, on the other hand reported out a very mild bill on utility rate reform, and there will be some opportunity for difference of opinion on that bill when it does get into Congress. It is in Congress now, but it has not yet been considered.

Oil pricing, in crude oil pricing, as we say, the House reported out a bill virtually identical or part of a bill which was identical to the President's Plan, but the Senate Finance Committee refused to include in the Energy Tax Act that came out of that committee any crude oil equalization tax, so we have again two different approaches. The Senate, however, or some members of the Senate, tried to get the Senate to go on record last week as being totally opposed to any kind of a crude oil

equalization tax, but that effort failed thirty (30) to forty-seven (47), so it's likely there will be some sort of an oil tax, relative tax with some kind of rebate system in the eventual conference report. Maybe a phase-out of crude oil pricing. That's kind of hard to speculate on.

Let's see -- coal conversion -- well, let's talk about utilities which has to do with coal conversion. Utility taxes -- the House said put a huge tax on all utilities and industrial use of natural gas, regardless -- natural gas and oil -- regardless of whether the utilities or the industries could convert economically the coal or not, and some of that would be rebated, would be returned in credits to those utilities which had to convert. The Senate Finance Committee rejected that in a vote of fourteen (14) to four (4) and there was no user tax on that bill as it came to the Senate floor. However, on the floor last week there was a user tax added. It is a scaled-down version of the user tax and it goes like this: There will be a user's tax on industry and utility use of oil and natural gas for boilers, but only on new plants and those which were originally built to burn coal. So, that's not too difficult, it's not too enormous, and its sponsors feel that it will save eighty (80%) per cent of the oil and gas that would have been saved by the President's Plan.

One-tenth (1/10) of the fiscal burden on the economy. So it's likely that the Congress report will produce something -- a simpler version than the House.

Now, the final one, the final zone, and this is the one where the most controversy was raised, not only this year, but in past years, has to do with natural gas pricing. The House reported out a version of their bill which was similar to the President's and would have extended natural gas Federal price control to the intrastate market. It would have set the level of a dollar seventy-five ($1.75), and there was -- there were fancy formulas to let it rise. But that's too many things. New gas was not being controlled, and Federal control should be extended to the interstate market, and the definition of new gas was narrow in the President's package, broadened a little bit by the House.

Now the Senate reported out a bill which was kind of a skeleton bill, the Senate Committee on Energy and Natural Resources, and in floor debate and in floor action, adopted what is going to be known as the Pierson-Benson Substitute, which would deregulate natural gas -- new natural gas prices, would not incorporate the intrastate market directly, and would have a broader restriction of new natural gas. Now, this was something that I am sure all of you have read about the filibusters conducted in

the Senate -- we were there for thirteen (13) days on that bill, nine (9) straight days in which nothing else was considered, or virtually nothing else. A couple of very late nights, two and three in the morning, and one night all night. The filibuster was finally broken, and the Senate exercised its will and the will of the majority of the Senate was that natural gas pricing, for this point, has produced part of the problem that we are in, and the Senate is going to have no more of it. Now, the conference is going to be a tough one on this one, since the bills will be separated, it will be sent to the President, and it is warned that if it is too far along the direction of the Senate version, the President may well veto it. That, of course, remains to be seen.

All of this indicates that we have some serious problems, that we have a large ball of yarn, and the talk around is that the President's Program is wrapped up in it, and that we may not have a comprehensive energy package or an energy bill enacted by the end of this session. Now, what the Congress is going to do is probably going to go into pro-formal session for some period to the end of the year, during which time these conference committees will be working without the interruption that comes from constant floor works. Now, there are other things going on. Today, for example, is the Social Security Finance

Legislation. How are we going to finance the deficit that is coming in Social Security. Those are very important questions, but they are very difficult ones. One body takes an approach that we just take the general tax revenues and add to it, and the other says well, we increase the rate that is paid for Social Security tax, but we have a differential so that the employer pays more than the employee. That is going to cause a serious problem for some Senators, including my boss. So these things are all going on, and it's a really complicated situation.

I am very pressed for time. I had intended to -- I guess -- not talk as long and give some time for questions and answers on the energy part of this presentation, and then go on very quickly into minerals, but I'll tell you what I'd like to do, instead. I would like to go ahead and just speak very briefly about the minerals legislation situation in Congress, and then open up for questions, and I'm afraid we won't have time for very many, but perhaps a few.

The minerals legislative area has not been near as active as energy, and that is perhaps as it ought to be, given our current energy situation, but my boss wanted me to make sure that I made the point, his concern is that if we don't begin to do something now about the lack of energy development and production, not only necessarily

on the part of the private sector, and of the industry, but because of different problems that they were having, the industry is having in producing minerals, particularly off of the public lands, that we very well could be faced with another crisis very soon, and it could be a minerals crisis. So, having said that, let me just briefly describe the energy -- or the minerals legislative situation.

As you know, there are two basic approaches to modification of the 1872 Mining Law, and there is a lot of pressure in the Congress to modify it. Some people say, and argue very convincingly that there is no need to change it, just to -- that the amendments over the years, and perhaps some other amendments now, could very easily satisfy all the problems that exist with relation to those laws. But, there are primarily two major points of view and approaches at the present time, and one is to simply repeal the foundation of the present land law, and to go to a Federal mineral leasing system for hard rock minerals. The other, of course, is to not repeal that concept, but to enact an updated, modernized and modified version of those laws, and address some of the legitimate, present-day concerns, particularly environmental concerns like rights of surface owners over land which the Federal Government still has the mineral rights to.

Now, in the House there has been a considerable

amount of activity. There will be more activity soon. Congressman Udall, who started out supporting the Federal leasing system has recently announced his change of heart and wholehearted support for Congressman Ruppe's bill which is the maintenance of the location patent system, and it's likely that there will be some field hearings later on during November and December that the Subcommittee will report -- the Subcommittee on Mines and Minerals of the House Committee of the Interior will report something out, and in the early spring, and there may be a bill on the House floor shortly thereafter.

The Senate has the same basic kind of legislation pending with Senator McClure having just recently introduced a Senate version of a bill very similar to Congressman Ruppe's. The Senate has been preoccupied with other matters mainly, and will probably follow the House lead and not be too active or out-front on the issue of mineral activity on public lands.

That is, I think, pretty much the situation. I do want to express to you my boss, Senator Domenici's position in relation to these two opposing points of view. He feels that the mining laws have served this nation well until very recently, and it is not necessarily the fault of the mining laws or the mining industry. He sees and has heard no convincing argument to change the concept on which

those mining laws are based, and if it comes before the Senate, he will support a maintenance of the location patent system. He is not only convinced that the right of access, the right of tenure is one that is very important, but he also feels strongly from personal experience, personal knowledge, I should say, of coal leasing, and personal experience with potash leasing here in our state, that we cannot get into that same situation for hard rock minerals.

Now, to the extent that I have any time left, I will be glad to take questions.

I thank you, very much.

(Applause.)

MR. EDWARDS: Our Stenographer needs to change paper, on her recorder, so while she is doing that, anyone who has questions, please move to the microphone. We have a few minutes. Any questions?

Please state your name, and who you represent.

MR. GIMBRELL: I am Dave Gimbrell, I am with the Peabody Coal Company. Mr. Gentry, there is one thing that particularly interests me, and that is that in the past several years, as we have seen the development of mineral policy -- coal leasing policy, and so forth, the development of energy policy, it appears that the primary concern is always the environment, and I think that we should

be concerned about it. One of the motivating factors, it appears to me, is the energy bill, or for the energy bill for energy independence, is a concern for national security. And yet, we don't seem to be hearing anything -- we, the public, don't seem to be hearing anything that -- about what problems we have with respect to national security. We have no feel, and no feel for what could happen, for example, if a total embargo occurred right now, and I, for one, would be interested in knowing if any studies relative to national security are going on, and if so, will they be made public?

MR. GENTRY: I think that is a very legitimate question, and one that we ought to rightfully be concerned about. In response to the last part of your question, I know that the General Accounting Office of the Congress is engaged in such a study. It may be a little broader than that, but it goes to all the ramifications of the -- of our heavy dependence on foreign imported oil, and it relates also to the balance of trade and balance of payments, which is perhaps as important as our military security, and our ability to function as a nation in the face of an embargo. We are putting out forty-five billion dollars a year, we are sending it overseas, we are paying foreign countries for -- this is just for crude oil. Forty-five billion dollars -- our trade deficit last quarter was in

the range of thirty billion dollars. We are just going out of sight with our balance of payments in our international trade situation. There is more to it, of course, than the crude oil that we import from overseas, but certainly the major element is that one, the lack of stability and economic growth in our trade departments around the world is another factor, but there are studies underway relating to all of these issues. I don't know that they have a degree of concern and will be expedited to the extent that I agree with you they should be.

Now, the President's Plan included an acceleration in acquiring oil and storing it in strategic oil reserves. That is moving forward, but even in the Congress, the funds for that purpose have been -- they have been reduced, so there doesn't seem to be a sense of urgency about that situation. The President and the people who support the strategic petroleum reserve do so because they feel that in the event of an embargo we would have the flexibility and the capacity to remain independent to take independent action for some period of time, like three (3) months, six (6) months, or however long the reserve was supposed to last. But it is a valid question, and I hope, at least to the extent that my boss and I would have anything to do with it, that the results of the issue will be made public, so that people will know what

we are doing to ourselves, what we are exposing ourselves to by holding the rein on private industry in this country.

MR. EDWARDS: We have a question over here. Please state your name and who you represent.

MR. THURMOND: My name is Alan Thurmond. I am with a firm of consulting engineers.

Mr. Gentry, the President used the term "rip-off" to describe a big segment of the energy industry, how prevalent is that attitude in Congress?

MR. GENTRY: That's a very good question, and it's a prevalent attitude. It's unfortunate, however, it is an attitude that is coming under attack, and at the present statements in that regard are coming under attack by many different sectors of our economy of our nation.

For example, in the Wall Street Journal, and I suppose in papers around the country very recently was a full-page ad put in there, in the paper, by a group of concerned -- let's see, they weren't -- I started to say environmentalists, but they weren't -- economists who are not -- who are not any friends of the oil industry, but they put in this ad that they considered that statement to be inflammatory and entirely false, and that it should be totally disregarded, and had no place in the development of important national policies that affected the present and the future of this country. So, while it is a prevalent

attitude, and it is an attitude on which a lot of the opposition to incentive prices for free market forces -- all of those kinds of things that we support, the Congressional Delegation from this State, it is one of the prime elements that causes those policies to take a back seat to further Government regulation and price control.

MR. EDWARDS: O.K. We have time for one more question, right here.

MR. MASON: I will make this real fast. I'm Charles Mason, with the New Mexico Energy Institute, Mr. Gentry.

You mentioned the five (5) various provisions of the energy bill. Do all five (5) of these have to be passed through the -- I mean, agreed to by the Congress and passed by the President, or can it -- to get an overall bill, or can they be done individually. For an example, if there is no agreement on gas regulation, does that throw out the conservation, and all the rest of those sections?

MR. GENTRY: It is my understanding, sir, that the present reading of the majority leadership of the House and Senate is that the bills will go to the House in block, and then be sent back to the Senate separately for ratification of the Congress, or adoption of the conference on them, and that the bills will then go to the President

separately. So that if the President does not like, for example, the natural gas part of the bill, or of the total package, it will be there in the bill that he can veto without having to concern himself with the other aspects of it. Now, that is not promised. It is something that I hope you will understand is not final, but to the best of my knowledge and awareness when I left Washington, that was thought to be the way that that was going to be handled.

MR. MASON: Thank you.

MR. GENTRY: All right. Thank you very much for your attention, and for your attendance.

(Applause.)

MR. EDWARDS: Thank you, Charles, for coming out and representing your Senator.

Our next speaker is the Governor of your own State of New Mexico, The Honorable Jerry Apodaca. He has been Governor for the State of New Mexico since January 1, 1975. A Las Cruces, New Mexico native, he entered the State Legislature in 1966. Re-elected twice, he was in the forefront of legislation -- a legislative move to equalize educational finance. He was also the first non-lawyer ever picked to chair the Senate Judiciary Committee. He sought and won from the 1975 New Mexico Legislature the largest financial interest for public education in the state's

history. Greatly expanding instructional services and providing teacher salary increases. New Mexico's status as a major energy producer has also consumed a great deal of the Governor's attention. Joining the Governors of nine (9) other Rocky Mountain and Western States, he helped to form the Western Governor's Regional Energy Policy Office, and was elected its first Chairman.

Elected Governor at the age of forty (40), he is one of New Mexico's youngest Governors. He graduated from the University of New Mexico in 1957 with a B.S. Degree in Education, and I present to you The Honorable Jerry Apodaca, Governor of New Mexico.

(Applause.)

GOVERNOR APODACA: Thank you. Thank you, very much. I always appreciate the opportunity to speak on an issue that is obviously of great importance to the whole world over, and the very fact that a conference of this nature is under way, I think, simply identifies even further the seriousness of the whole question of the energy problem, and I am sure that the next two days we will be discussing it extensively.

I sometimes wonder what it is I could really say to men and women that are involved in the energy industry in one way or another that really would add much more to what has already been said, and what you already

know. In many cases, information that you had way before the American public even became aware of the seriousness of the energy problem, but maybe that in itself is something that we perhaps need to discuss.

Because, here we are in 1977, having experienced a number of serious crises in the energy area. First of all, of course, going back to a few years ago, to the embargo, a couple of severe winters and some very -- some very unrelished experiences in many parts of the country. And yet, as we stand here today, discussing the issue of energy and mineral potentials there are people throughout this country that still refuse to believe that an energy problem really exists. So, maybe one of the key responsibilities that those of us in public office, and those of you in the industry, or related areas share is our responsibility to make sure that the American public clearly understands the problem as it really is, and clearly understands the potential of dangers of the problem, even in years ahead of us.

Probably as much as anything else, that's the biggest challenge that we face, because men and women in public office, whether they happen to be President, U.S. Senator, Congressman, Governor or whatever, by and large will respond through the course of years, to public sentiment. And so even though some of us may disagree

entirely with the President's proposal on energy, or disagree in part, I would think that one thing we would have to agree on, that the President probably is relating almost to every detail to what the general sentiment is of the people in the United States.

So I think that it is up to us that live in states where energy is a key industry to make sure that not only the President, but the people of this country clearly understand what the problems are in the area of production, and mining. And that's why we do have a responsibility that is somewhat alike the urban east, or some of the larger urban cities of this country where production is simply not a factor, because it is necessary that people in every part of this United States understand the problems and the costs of delivering energy sources to every part of the country.

We realize here in our state, and I assume that most of the people here in attendance are either from New Mexico or from the Southwest, we realize that New Mexico alone cannot begin to tell the story of the producing states, and even the producing states, by themselves, simply could not relay the message to the other part of the United States in an adequate way. And so we have to depend on our U.S. Senators and our Congressmen, and other spokesmen, to try and tell the story as we in the producing

states see it. We recognize that every American taxpayer is very concerned about increasing taxes, and the costs of energy, and it would be a good message to tell them that somehow we are going to devise a way to lower the cost of gas, and the cost of oil, but the fact is that all of us know that that is history. The American public now, and forever, is going to have to make a decision that energy delivery is going to be very expensive. For that reason, we are going to have to start treating energy with more care, and I still think that the President -- one of the President's proposals on conservation is something that is being taken too lightly -- too lightly by the people of this country.

Energy consumption is at an all-time high, in spite of the fact that we have been talking about the energy problem now for six (6) or seven (7) years in a very extensive way. So, the American public yet has not realized that conservation is a must, and even though we are simultaneously trying to discover new resources, and develop new ones, that we must start to conserve and start now.

I had the occasion to be at the President's Press Conference about two (2) or three (3) weeks ago when he leveled his charges on the oil industry, and later on in the morning I visited with him very briefly, and I relayed

to him that in my state there was some concern about some of his positions on the whole energy program, and he understands that, and he welcomes disagreement. So I think that it is up to us -- it is up to us to make sure that the issue is well-discussed, and that the problems of the energy industry are well understood.

It concerns me that here in New Mexico, in spite of the fact that we are one of the largest producers of natural gas, we are already encountering shortages. Las Cruces, for example, is having some difficult time finding adequate supplies of natural gas. Eighty-seven (87%) per cent of the gas that we produce here in New Mexico, as I am sure all of you already know, was exported or used in the export of gas to other states. Now, Congress and the President have tried to address the increasing cost of production by suggesting that we raise the price of natural gas to, I believe, a dollar seventy-five ($1.75) per thousand cubic feet for newly discovered gas. This may simply not be enough, and those of you that are in the industry can understand that better than I.

Domestic prices of oil are ultimately going to be raised to meet the world market. Coal conversion will ultimately be a program that will be quite extensive, but whichever way -- avenue we follow, the one thing that all of us need to impress on the minds of the public, that every

resource is going to be expensive. That if our energy is oil, it's going to be costly. That if our energy is natural gas, it is going to be expensive. That if our energy is coal conversion, electricity is going to be expensive, and that if the energy is even nuclear, that it is going to be expensive. So, somehow, somehow we need to impress in the minds of the public that energy is no longer a cheap resource, and for that reason, we have got to tell the story of conservation, probably better than we ever have before. Here in New Mexico, we have attempted a number of programs on conservation. Some of them have worked and some of them have not. I keep getting mail, and memorandums, or what-have-you from the White House, and the Federal Government regarding the 55-mile speed limit, and yet, any of us can experience as we ride down the highways of New Mexico, or any other state, that the speed limit is observed by very few.

So, somehow -- somehow conservation has got to be a thrust in the whole energy problem, because in my opinion, if we can address that issue, if we can ultimately convince the American public that we have to conserve, then we have started to convince them that there is an energy problem, that there is a crisis, because once they understand that, then they can understand what it means to have to look for other resources to produce them, and to

deliver them.

Those of you that represent the industry probably have the biggest job ahead of you. Somehow, in some way, you have got to convince the American public and men and women in public office, that your interest is the national interest. There are too many people that just simply think that the big oil companies have a major concern about profits, and little regard for the people that they serve. I happen to disagree with that, but not enough people do. So, these kind of conferences are good to identify and to discuss among yourselves problems, and perhaps some of the solutions. But they do very little -- they do very little unless the people outside of this hall are able to understand the dilemma that the energy industry is in.

I feel that New Mexico can accomplish a great deal. We in so many ways are very fortunate that not only are we rich in oil and gas, we have substantial coal, substantial uranium, and certainly a great potential in the solar area, and for that reason, New Mexico, because of its size, and its small population, and yet because of the resources, can be an example in the area of conservation, in the area of innovation, and in the area of production. So we hope that in our Administration, that we have been able to encourage those people that are

involved in either the private sector, or in related fields, in the energy field, to explore -- to explore better ways for conservation, and better ways for production.

The President, in his remarks about three (3) or four (4) weeks ago, put this energy problem in the same category as having the thrust of a major war. I think the point that he was trying to make, of course, is that if we lose our effort to expand our resources, that obviously the impact in this country would be as severe as a major war. So it is up to us, here in the West, up to us that live in producing states, to make sure that the members of Congress, that the Administration in Washington, and that the general public understands the problems quite well.

We think that the crises that we have had for the last six (6) or seven (7) years has probably been a blessing in disguise, because it has forced the American public to accept some restrictions. But more importantly, it has forced our elected officials at every level, to discuss the energy problem. I hope that this conference, and the discussions that take place in it, are distributed beyond this auditorium. I hope that as you go back out in your respective fields, that you continue to emphasize the day-to-day committment that we must have to try to deal

with the energy concerns of this country.

Thank you very much for inviting me this morning.

(Applause.)

MR. EDWARDS: Thank you, very much, Governor. Our Governor tells me he would be willing to answer any questions that you might have, so if we have individuals who have some questions they would like to pose the Governor, please move to the microphones in the aisle. It's hard for me to see you, so I can't determine if there is anyone there. Any questions at all for the Governor? Oh, we have one here. All right. I was about to say you have answered all the questions, Governor.

GOVERNOR APODACA: I doubt that.

MR. EDWARDS: Yes. State your name and who you represent, please.

MR. PATTERSON: My name is Randy Patterson. I am from Artesia.

Governor, you mentioned that we in the petroleum industry have a large job ahead of us to convince the American people that we are not going to rip them off, you might say. It is my opinion that our news media can vastly sway public opinion one way or the other, and my question is: can you suggest a method in which we can prove to our news media that the petroleum

industry is not out to rip off the American people?

GOVERNOR APODACA: I haven't figured out how to convince the new media that we are doing things right, so I --

(Laughter.)

-- well, I think we first of all have to start with the assumption, and I think a correct one, that the members of the media are not out to misrepresent. That by and large, maybe with some exceptions, whatever they print or report on radio and television is as -- as they see it. So you have to remember that members of the media are no different than anyone else. They are taxpayers, they have an interest in government, they have an interest in everything that goes on day-to-day. In addition to that, of course, they have a responsibility of reporting the news as they see it. So, you have to start with the assumption, first of all, that the media is neither for, or against, but that rather their purpose is to report to the readers, or listeners, or viewers the information as they know it best. So, unless the industry, let's say, makes an earnest effort to tell its story, there is no reason to assume that the media will go out of its way to make those kind of discoveries on information. So, the initiative, very frankly, has to be taken by the members of industry. You have to remember that the media,

by and large, would be starting from the assumption, as most people in this country, that the oil industry probably makes enough money anyway, and that they don't need to make any more money. So you probably would be starting with that disadvantage. But I am certainly convinced that if an effort was made to really tell the story as it should be, that ultimately, the information will be assimilated in that way.

I think nuclear energy, for example, is a perfect example. About two years ago, I remember that Frank Zarne -- you forget people when they are gone, very fast --

(Laughter.)

-- was at one of our energy conferences, it must have been in 1975, and he sat next to me at the luncheon in which he delivered a speech, if I remember correctly, and we were discussing nuclear energy, and he either had a note-clip with him from the New York Times or referred to one, I forget, where there was a big headline when the electricity came into being in the very extensive way, and essentially the thrust of the story was that electricity and power was going to kill all the vegetation. Well, in the year the Times wrote that story, they probably believed it, but I think it helps to set the example that whether -- regardless of who it is,

they have to be informed and educated. Members of the industry can see the energy problem coming years and years ago, but somehow they never related that information to the American public. You talk about nuclear energy today, I think people have the same concern about it, as they probably did electricity in the day of its initiation. Education and understanding probably would make nuclear energy, or the potential of nuclear energy more acceptable to the American public.

I think you just simply have to start out with the premise that the media is interested in reporting the right information, but you have to convince them that you have the right information, and you don't necessarily do it with full-page advertisements, or T.V. spots, you do it through a process of education. I would say that if I was in the energy industry here in New Mexico, and I was trying to lay out a ten-year plan as to how to accomplish that, I probably would develop a series of seminars with members of the media, and bring the best kind of information to them and tell it the best way I know how, so that they would understand, and let them ask questions, and I would say that in a matter of ten (10) years there would be a better understanding for the problem. I think one of the unfortunate things about the industry -- the oil and gas industry primarily -- is of course that it is

generally in the defensive rather than the offensive.

MR. EDWARDS: Any other questions?

Thank you, Governor. I can say that I believe you have already contributed to helping the understanding begin.

GOVERNOR APODACA: Thank you, very much.

(Applause.)

MR. EDWARDS: That concludes our morning program. Just a reminder, lunch is being served on the lower level in the center, just outside the main door, and we will begin again at one thirty (1:30) this afternoon. Please be prompt in your attendance.

(Whereupon, the conference in the above matter was recessed for the noon hour, to reconvene at the hour of one thirty o'clock, p.m., on the same day.)

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AFTERNOON SESSION

MR. EDWARDS: Good afternoon, ladies and gentlemen. So that we won't get into the time press like we did this morning, we will take care of a few administrative matters while people are filing in to take their seats. One thing is, due to the lack of interest in the bus tour to Santa Fe and the northwestern part of the state, we have had to cancel that tour. We did not have a sufficient number interested that we could go ahead with that. So, those of you who have made a reservation, and have paid your money, please stop by the desk and obtain your refund. We are sorry that we had to cancel that, but we just didn't have enough to do it.

A second item is that if you purchased a ticket for today's luncheon and happened to get in the wrong line, and they didn't accept it, the ticket is still good for tomorrow. And if you have any further difficulties from that, get ahold of John Gumert (phonetic) up in the logistics area, and he will try to help you out.

I think we have had a very interesting program for a start of this conference this morning. I thought that the speakers all gave us a great deal of food for thought, and I am equally confident that this afternoon

will be as successful.

To lead off with our program this morning -- or this afternoon, we will be hearing from John C. Davis, who is going to talk to us about the problem of getting energy to market. John is the Vice President, Executive Department of the Atchison, Topeka and Santa Fe Railway System, and Vice President of Santa Fe Industries, Incorporated.

Last week he was elected to the Board of Directors of both the Santa Fe Industries, and the Santa Fe Railroad, and on January 1st, will become the Executive Vice President of the Santa Fe Railroad. He is also -- he also is Director of various subsidiary companies, including the Belt Railway Company of Chicago, Gulf Central Pipeline Company, and the Kirby Lumber Corporation. He is a member of the Board of the Foundation for American Agriculture, and a Director of Oxide and Chemical Corporation. Mr. Davis attended Purdue University, graduating in 1941 with a B.S. Degree in Mechanical Engineering. He also attended Massachusetts Institute of Technology, graduating in 1956, and held an Alfred P. Sloan Fellowship. So I present to you now, at this time, Mr. John C. Davis.

(Applause.)

MR. DAVIS: Good afternoon, ladies and

gentlemen. Any of you here that are here for Lawrence Welk, that's Friday, not this afternoon.

(Laughter.)

I am happy to be here with you at this conference to discuss the emerging expectations of a changing pattern in the future use of our energy resources. I congratulate those in the Department of Interior who arranged this timely meeting, and also thank them for holding it in New Mexico, The Land Of Enchantment.

I realize that a number of you have some familiarity with Santa Fe Railway, a principal subsidiary of Santa Fe Industries. For those of you who may not be so well-versed in our business, however, I would like to comment briefly about our company before addressing my assignment, to report on getting energy to market.

Santa Fe Industries companies are active in the production of petroleum and in the development of western coal. In addition, uranium holdings and a solar energy project being constructed by the company's Robert E. McKee subsidiary, right here in the immediate vicinity of Albuquerque could keep the Santa Fe family contributing to energy development right into the 21st century. Lest you think we suddenly jumped into energy-related activities, let me tell you that our first petroleum lease was acquired in 1896, to insure a supply of

fuel oil at reasonable prices for steam locomotives in California which we were then converting from coal to oil fuel.

These petroleum holdings have been expanded over the years and recently include the acquisition of the assets of Westates Petroleum Company in California, which will provide substantial additional reserves. We are also continuing to seek new sources of oil through our exploration efforts both on shore and off the Texas, Louisiana, Alaska and California coasts.

As a transporter of energy, Santa Fe Industries major activity is carried on by its rail subsidiary, The Atchison, Topeka and Santa Fe, perhaps better known to most of you through the immortal lyrics of the late Johnny Mercer. Additionally, we have a major committment in pipelines, the principal ones being the nineteen hundred (1,900) mile Gulf Central System, which transports anhydrous ammonia from the Louisiana Gulf Coast to the Corn Belt states in the Midwest, and the eight hundred (800) mile Chaparral Natural Gas Liquids Pipeline from the Permian Basin to Houston.

Before discussing with you the logistics of transportation, particularly as related to the movement of western coal, let us consider the energy problem as it is described in, 1977 National Energy Plan, from which I quote

in part: "Seventy-five (75%) per cent of energy needs are met by oil and natural gas, although they account for less than eight (8%) per cent of United States reserves. This imbalance between reserves and consumption should be corrected by shifting industrial and utility consumption from oil and gas to coal and other abundant energy sources."

Enough has been written and spoken about the circumstances which have made the mining and distribution of western coal financially feasible that I will not attempt to saturate you with additional statistics. As a preface to my remarks, however, I would commend to your attention a report published last July entitled, "The Railroads, Coal and the National Energy Plan: An Assessment of the Issues." This report was prepared by Richard J. Barber Associates, Inc., sponsored by several western railroads, including the Santa Fe, and presents a far more complete analysis of problems and possible solutions related to satisfying the transportation demands inherent in the shift to increase reliance on coal than could possibly be accomplished in the time at my disposal today.

In brief summary, the Barber Report concludes in part that railroad coal traffic will more than double by 1985, equivalent to an annual rate of growth of about seven point four (7.4%) per cent. By comparison, from 1971 to 1974, railroad coal traffic grew at an annual rate

of about three and a half (3 1/2%) per cent. Additionally, the report anticipates capital expenditures in the order and magnitude of four billion ($4,000,000,000.00) dollars related to the transportation of coal.

Now, having summarized one appraisal of the National Energy Plan's projected impact on the nation's railroad system, and the subsequent problems of performance and its ability to meet the challenge, I would like to devote the balance of my remarks today to what Santa Fe is doing to help meet the nation's energy requirements for the next thirty (30) to forty (40) years.

As have other members of the railway industry, we have assured Government planners and the coal and utility industries that we can, indeed, accommodate this future traffic. Santa Fe's plan today is vastly under-utilized, and comparatively little expansion of main-line capacity will have to be accomplished. However, it is true that large amounts of new rolling stock and locomotives must be acquired. At Santa Fe, we are now taking delivery on the first units of a one hundred and twenty-four (124) locomotive group being acquired at a cost of approximately seventy-seven million ($77,000,000.00) dollars. The delivery of these locomotives will relieve a presently tight power shortage, and will assure our ability to accommodate normal growth and additional coal traffic, which

will be developing in the next year. It does not, however, provide for our locomotive needs as we project them into the 1980's.

We have been in the unit coal train business a long time. As a matter of fact, we have successfully run for eleven (11) years the York Canyon Unit Coal Train, operating a ten thousand (10,000) ton train between a mine in northern New Mexico and a steel producer in southern California. The York Canyon Unit Coal Train for many years the longest such operation in the country, completes a twenty-two hundred (2,200) mile round trip each four (4) days. Information I received at lunch time was that that train reached its destination in California at 1:42 this morning, and on its empty return to the mine, should pass this building at about 4:00 p.m. tomorrow afternoon. So if you happen to be out there at that time, look out the window, maybe you will see it go by.

Additionally, to this morning's paper, in the Wall Street Journal, if you noticed, the Salt River Project in Phoenix has signed a letter of intent with Kaiser Steel for the purchase and shipment of five hundred thousand (500,000) tons of coal annually from that York Canyon Mine to the Coronado Station in St. Johns, Arizona, so if you come back here in another year or two, we will have two trains to see go by, at least.

Right now, on the Santa Fe, we have over three million (3,000,000) tons of coal moving each year from points on other railroads in Colorado and Wyoming, to Santa Fe destinations and junctions. Just recently, this traffic was increased by about six hundred and fifty thousand (650,000) tons annually, with the addition of another new unit train movement originating on the Denver and Rio Grande Western Railroad near Grand Junction, Colorado, and traveling a distance of about a thousand (1,000) miles on the Santa Fe from Pueblo to Joliet, Illinois, for ultimate delivery to Northern Indiana Public Service Company at Gary.

I hope you won't be too disappointed if I don't include in my remarks any comparisons of transportation economics as between transportation modes. The Barber Report has a section on that, and proponents of Coal Slurry Pipelines also have presented comparisons. Right now, I am a witness in two unit coal train rate cases pending before the Interstate Commerce Commission, and it would not be appropriate for me to say anything beyond three (3) general observations.

First, every coal transportation problem is different -- different in the sense that to the extent new line construction or branch line upgrading is needed, the economics are affected.

Second, transportation rates whether by train, barge or pipe seem destined to increase in the future, notwithstanding the best efforts of transportation companies to control costs in an inflationary economy.

Third, new construction costs can also be expected to rise which make any cost comparisons suspect unless one is sure comparisons are being made for the same time period.

Now, earlier this year, in this same city of Albuquerque, Santa Fe Industries made two important announcements relating to coal properties in the San Juan Basin. First, the Hospah Coal Company, one of our natural resource subsidiaries, has leased the rights to about three hundred million (300,000,000) tons of coal located in the general area of Star Lake here in New Mexico, to the Chaco Energy Company, a subsidiary of Texas Utilities. Secondly, we announced that the Gallo Wash Coal Company, another subsidiary located in New Mexico, has leased its rights to about one hundred and forty million (140,000,000) tons to the Tucson Gas and Electric Company. I should add at this point that total coal shipments from these two leases together with the coal leased from other interests in the same area, are expected to increase from about one point five (1.5) million tons in 1980, to twenty-eight million (28,000,000) tons each year by the

end of this century.

Now, translated into train movements, that would be between seven (7) and eight (8) trains in each direction each day out of the San Juan Basin, from these two leases alone.

These proposed mines are located some distance from our existing high capacity transcontinental mainline. To provide transportation service for them, a new subsidiary, Star Lake Railroad Company, will construct the line necessary to serve them. Our recent experience in planning this new railroad will, I believe, be of some interest, since it has differed so markedly from that which occurred when most of the railroad mileage in this country was constructed. In those days, if the need existed for a new rail line, and the capital was available, few other considerations troubled the planners and builders -- except, of course, the limitations of early primitive machinery to cope with topographical barriers. I would like to share with you, therefore, some of the things we have learned about the planning of a new railroad in the 1970's.

We have found, first of all, and not surprisingly, that new rail lines are expensive. We estimate that the capital cost of the eighty-two (82) mile line necessary to serve the Star Lake and Gallo Wash areas will cost approximately eighty-five million ($85,000,000.00)

dollars. It is interesting to compare this with the cost of the thirty-eight (38) mile branch we constructed in 1966, to serve the York Canyon Line. This line cost four point one ($4.1) million dollars.

While it is true that there are differences in terrain and soil conditions, and they will vary between any two locations, but it nevertheless is apparent that railroad construction costs in the late 1970's are approximately ten (10) times what they were a little over a decade ago.

The new railroad will leave our main line near Baca, which is identified as Prewitt on our highway maps, and is located about forty (40) miles east of Gallup, in western New Mexico. It will follow a route eastward and northward for sixty-two (62) miles, and then divide into two ten-mile segments, one to the Star Lake area, and the other to Gallo Wash. We have also projected a western extension for an additional forty-four (44) miles to the eastern boundary of the Navajo Indian Reservation, and that line will cost approximately thirty million ($30,000,000) dollars.

A question logically comes to mind at this point, why stop at the Reservation boundary? The answer is quite simple: The regional environmental impact study of which the Bureau of Land Management is the lead agency,

is confined to the area east of this boundary, and we therfore have limited our formal application to the Interstate Commerce Commission for authority to construct the line to only that area. I might add, we don't realistically expect to terminate the line at a barbed wire fence, but rather expect that when the western extension is completed, it will join another line projected from Burnham, New Mexico, on the Reservation, a distance of some twenty-three (23) miles to the eastern boundary.

The first engineering task which we announced more than three (3) years ago was to roughly locate potential routes by using existing topographical maps. The most favorable was then flown and photographed. Of the several hundred miles of possible route, two basic considerations entered into the selection of the prime route. The route which would disturb the environment the least, and also be a sound engineering choice. The selected route satisfies both the environmental and engineering objectives.

After the prime route was determined, a detailed environmental survey and engineering study was undertaken. It was found in this phase that several minor line changes could be made to avoid environmental sensitive sites.

Throughout this process, the public, the Navajo Nation, and Governmental agencies have been kept

fully informed about our planning. Numerous meetings have been held in Indian Chapter Houses, District and State offices, and with Federal agencies in Santa Fe, Albuquerque and in Washington.

Applications for permission to survey rights-of-way or to obtain them have been filed with the Navajo Tribe as well as with State and Federal agencies. Applications have also been filed with the Interstate Commerce Commission for authority to establish the new common-carrier railroad.

An interesting sidelight to our preliminary effort has been our contact with allottees. The proposed prime route passes through several so-called Indian Allottments, which were made to Indian families about a hundred (100) years ago. We learned that in order to secure permission to survey and acquire rights-of-way over these allottments, we would have to obtain the approval of over fifty (50%) per cent of the heirs. There are approximately sixty (60) such allottments on our route, and over six hundred (600) allottees, who are now widely scattered, some as far away as Alaska and Hawaii.

So we set about this task with the necessary determination, and were able to meet the fifty (50%) per cent requirement fairly quickly. We have continued our contacts, however, in an effort to reach all of the Indians

involved. At last count, only four (4) or five (5) allottees out of the total of six hundred and twelve (612) have not supported our project.

This support is important to Santa Fe, as the Indians not only have been our historic neighbors, but they also always have been a substantial segment of our work force. We look forward to the Indian employees helping us build and operate our new line.

Another sidelight to our planning effort has been the discovery of several previously unrecorded archeological and paleontology sites. Our consultants have walked a swath wider than our proposed right-of-way, and have catalogued these sites, which we will protect with appropriate measures.

We plan to fence the entire right-of-way, which will serve to protect grazing stock in the area. At the present time, much of the area has been over-grazed, and vegetation is limited. With the construction of the railroad and our proposed erosion protective measures, the right-of-way will become greener than the surrounding countryside and thus attractive to livestock. We will, of course, provide adequate stock underpasses so that livestock can graze in the present pastures.

We have found that our previous engineering and construction procedures and specifications are not too

different from those now required by law. The major change lies in the need, now, for documenting locations, environmental reports, mitigation measures, and a myriad of permits which must be applied for and then analyzed by Government agencies, all of which require a great deal of time, and, of course, considerable expense. But, if these measures are necessary to protect the environment, and are extended to all phases of our economy, then we are more than willing to comply in every reasonable way. We have backed this position with our efforts and expenditures for the Star Lake Railroad. From this undertaking will come, in due time, a new railroad which will add an important link in the transportation of coal from mine to user, and thus be an important step toward the nation's goal of energy self-sufficiency.

Our York Canyon Line was authorized by our Board in August, 1964. In October, 1966, some twenty-six (26) months later, a special inspection train was operated over the completed line. Regular coal shipments commenced shortly thereafter. In recognition of the differing problems confronting railroad construction in the San Juan Basin a decade later, we established an expanded timetable for the Star Lake Line after its authorization by our Board in May, 1975. March, 1978, was set as the final month by which construction had to start to meet late 1979

coal transportation demands. With the efforts we have expended, as I have already outlined, we still could meet this schedule but for the critical delay we now face as a result of the Government's apparent refusal to permit timely completion of the environmental impact study necessary to procure needed right-of-way to commence construction. Our frustration stemming from this threatened delay is compounded by an apparent lack of any logical reason for Washington's foot-dragging.

Originally, the railroad was included in a project EIS, which has since been completed. We were severed from this EIS over our objection, and included in the Star Lake-Bisti Regional EIS. This larger EIS was, however, scheduled for completion in March, 1978, and we have cooperated fully with the Interstate Commerce Commission and the Bureau of Land Management in development of the railroad phase of the study here in Albuquerque, in the sincere belief that the schedule could and would be met.

Unfortunately, the Interior Department has apparently decreed otherwise. Because of a recent court decision relating to Federal coal leasing programs, Interior has announced that completion of Star Lake-Bisti EIS will be postponed until 1979. None of these coal leasing programs are involved in the construction of the Star Lake

Railroad, and while it would eventually transport coal covered under these programs, there are hundreds of millions of tons available in the region which are not covered and which the railroad could begin to transport immediately upon completion. In announcing this delay, Secretary Andrus attributed the need for such to "various situations", the specific nature of these were left unspecified. We can conceive of absolutely none, however, which pertain to the railroad construction or the coal needed to be transported in 1979 and 1980.

On September 7th our Chairman and Chief Executive Officer, John S. Reed, wrote the Secretary urgently requesting that the railroad EIS be severed from the regional study and permitted to be completed in a timely fashion on a project basis. Mr. Reed's letter remains unanswered, and we are faced with the prospect of the Albuquerque EIS study grinding to an unnecessary halt.

Three (3) weeks ago, Secretary Andrus told a Louisville audience that "coal is America's ace in the hole that will win us the energy game in the years ahead," he said, "but coal in the ground, as you and I know, is no more valuable than an ace in the hole in a poker game if we fold up on the first round of bets. Coal has to be taken out of the ground, treated, transported and burned

before it can be turned into energy, just as an ace in the hole in a poker game has to be played properly."

Assistant Secretary Martin, who spoke to us this morning, a few days later, on October 25th, told the Senate Subcommittee on Energy Production and Supply that Interior would adopt a policy of expediting all decisions involving coal as an energy source which were not directly involved by the court order to which I recently referred. You may recall his comments to that effect this morning. He said concentration would be directed to those EIS studies which could proceed without violating the court order.

In light of these encouraging pronouncements, we still have some hope of avoiding the unhappy prospect of being forced to stand still and wait, but we have been led to believe that Interior's idea of expediting is really a year's delay for the Star Lake-Bisti EIS. The Department must either restore this regional study to its original timetable or remove the railroad EIS from the regional study, if the Star Lake Line is to meet the needs for which it is presently designed.

I have attempted to give you my perspective of the challenge facing the railroads, and particularly the Santa Fe in getting the energy represented by coal to a needy market in the years ahead.

Let me close with this: In World War II, the railroad system of the United States successfully met the challenge of the greatest burden ever placed upon it, and thus contributed substantially to the winning of that war. For a close-at-home example, in 1945, Santa Fe operated fifty (50%) per cent more trains than it does today. Since that time, improvements in track, signalling, locomotives, cars, and our operating methods have permitted us to increase the volume of tonnage we handle by almost fifty (50%) per cent, while making a thirty-three (33%) per cent reduction in the number of trains operating. Does this mean that we could, without any changes in our physical plant, again handle the number of trains handled in 1945? Or to put it another way: with today's locomotives, cars and signal systems, can we easily handle a hundred and fifty (150%) per cent of our present volume? The answer is, probably not, at least not without delays of a sort, which in the short run, neither we nor our customers would consider acceptable. However, it is my firm belief that given competitive access to capital markets through adequate earnings, which will come from enlightened regulation and a prospering economy, the Santa Fe and other railroads can make the additional investment which will permit this level of volume increase, and the country can have confidence that we will meet this new challenge as well.

While, as I have pointed out, new lines of railroad cannot be constructed overnight, our lead times are certainly no worse than those of coal mining and electric utility concerns. The opening of a new mine might easily be a four (4) to five (5) year effort, and the planning and construction of a major generating facility may be a seven (7) to ten (10) year endeavor. In short, we do not see the expansion of railroad capacity as the "critical path" limiting factor in southwestern energy projects.

Having said that, however, I must point out that the railroads cannot act in a vacuum in planning for tomorrow's transportation of coal. In order for our plans to be timely and effective, we must be kept informed of the plans being made by the mining companies, the utilities, and by the various Government agencies which are involved.

If I have been successful in making any single point which you retain when you leave this conference, it is just that, in order to meet the nation's energy needs through the 1980's and beyond, we must all be planning together. And that is why conferences of this type can be extremely valuable and why I appreciate having had the opportunity to participate in the deliberations of this group.

I thank you.

(Applause.)

MR. EDWARDS: Are there any questions of John? I hope that sudden flashing of lights wasn't a signal that we were getting our energy cut off.

(Laughter.)

Do we have any questions at all?

(No response.)

Very well done, John. Thank you, very much. Our next speaker is Mr. Ira G. Corn, who has the interesting topic of Freedom, Energy and a Proposed Solution.

I think what he has to present to us will be of great interest. Ira Corn is Chief Executive Officer of the Michigan General Corporation in Dallas, Texas. Prior to assuming the post of Chief Executive Officer, Mr. Corn was a Financial and Marketing Consultant in Dallas for eighteen (18) years. He graduated from Little Rock Junior College in 1941, received an A.B. and M.B.A. from the University of Chicago in 1947 and 1948. His first job after graduation was as a Staff Consultant with General Electric Corporation, working out of their New York headquarters, with G.E. subsidiaries on sales, advertising and marketing programs. He was an Assistant Professor at Southern Methodist University in Dallas, Texas, for six (6) years, and served as Chairman of the Marketing Committee of the Gas Appliance and Manufacturing Association from 1951

to 1952. I present to you now Mr. Ira G. Corn.

(Applause.)

MR. CORN: Good afternoon. The success of OPEC revealed a critical weakness in both the short and long-term energy aspects of our social and economic system. As a result, ideas for the development of an offsetting program have made a continuing appearance in the national agenda now for four (4) years. Depending upon to whom you listen, opinions on the importance of this national energy policy range from a judgment by M.A. Addelman, Professor at M.I.T., that the situation represents merely a loss of economic efficienty, but certainly nothing approximating a crisis. Now, the other side ranges up to a point declaration of a national emergency from such personalties as Hans J. Morganthal and Barry Commoner, Mr. Morganthal views the issue in terms of a, "turning point in history." Commoner claims that the fundamental character of our economics is at fault. He says, "we produce for profit rather than for social values."

I do not intend to review the intricate and complex attitudes and specifics produced by all the experts during the past four (4) years on the subject. Volumes would be needed to cover these conflicting opinions.

Reports by the dozens have been prepared setting forth solutions as well as endless complaints about

solutions. Instead I will look at the problem from a broad overview using the perspective of the outsider, who has never been involved, directly or indirectly in the energy industry on either side. Let us first look for a clue that might have been overlooked by those currently involved in the ferocious debate. A reasonable conclusion is that it appears that virtually all the parties involved have a tremendous built-in bias and prejudice. The extremes in the data, and the proposed recommendations betray an unbalanced viewpoint. Too many of the sure-fire plans and criticism are tinged with unreality, fantasy, or arrogant assumptions of authority.

The world throughout its history, and that is a long time, five thousand (5,000) years, has been dominated by people who like to put their foot on someone else's neck. Often this occurs because people are filled with bitterness, antagonism or hatred. Or, because of their intellectual superiority and training, which gives them a certainty of conviction necessary to force their judgment values on others.

Business leaders frequently find their own managers tinged with this flaw the desire to act as an executive over others solely to demonstrate that they are executives. It's a common weakness in human nature, and known to all of us.

Political leaders, however, must guard against -- especially so -- guard against this tendency, while seeking a value conclusion regarding any matter which might be called a crisis. Those who sincerely but authoritatively feel the righteousness of their views, can be very dangerous to a democracy. Invariably, in an authoritative nation, crisis is seized upon as a time for consolidation and enlargement of personal authorities. And all to often, a crisis is manufactured or exagerated for that purpose.

Many of us here today remember the '20's and the '30's and the '40's, when the college textbooks predicted that the nation had only a ten (10) or a twelve (12) year supply of oil. And OPEC has caused many of us to believe that this long-predicted crisis is truly upon us. Obviously, that is not necessarily true. Such a prediction is exactly that, only a prediction. And while we have no shortage of forecasters, we have an incredible shortage of prophets with a credible record of success in forecasting. For example, none of the six (6) post-war recessions were predicted by members of the President's Council of Economic Advisors as much as a year in advance. Other groups, such as the Club of Rome, suddenly seemed to believe that only now we have discovered the phenomena of finite resources.

However, history demonstrates that for five

thousand (5,000) years, man has always been able to eventually overcome shortages and countless problems through new inventions and advances in technology. It has been observed that members of the leadership, the elite, seem to believe that when the serious problems occur, only they are qualified to act as spokesmen for the proper course of action. And, of course, as defenders of the true faith, they could be relied upon for expert judgment and interpretation of selective facts.

Thus, their recommendations should be accepted with little question. Politicians, for the most part, have usually avoided seeking the full endorsement of the intellectual branch of the leadership elite, possibly because they have sensed an unacceptable amount of inelasticity of views of intellectuals. However, no subject in recent history has produced so many varied viewpoints as today's energy problems.

The importance of inexpensive energy to the success of our economic system has no doubt been understated. Energy is a common denominator to our entire way of life. Every politician shudders at the thought that he might get the blame for the demise of easily available energy.

Let's next example a contradiction: if the energy crisis is so serious for the United States, which

still possesses vast resources of oil, how could nations like Japan and Germany continue to exist without taking drastic action when they have no domestic oil and no prospects for any? One can logically conclude from this observation that there is some aspect of a, "manufactured crisis," in many of the proposed solutions for the United States. So, we must assign part of the crisis attitude to an emotional reaction to the sudden realization that although we were once self-sufficient in oil and gas, now we are not. Since Japan, Germany, and most other nations have never been self-sufficient in regard to energy sources, their attitudes are far less emotional. The answer in those countries seems to be, "So what? Let's go to work to earn enough to pay for what we have to have."

Now, that attitude changes their energy crisis to one of an entirely different character. The United States, for example, uses a host of other raw materials for which it must rely in part or whole, on foreign sources. For example, chromium. Other raw materials which are scarce and have increased sharply in price -- two of them four (4) times since 1967 -- spot prices in coal and uranium. Where are the charges of windfall pockets in these industries? Currently, for example, copper imports are sharply increasing, and are estimated to be in excess of twenty (20%) per cent of the domestic requirements this

year. Is this reliance on imports of copper cause for a national copper crisis?

So, we may conclude that the concept of being dependent on foreign nations for much of our oil seems to add an emotional factor which hinders the selection of an arm's-length solution to the energy problem.

Next, Americans are also reacting emotionally, partly because of the OPEC-Cartel arrangement itself. And thirdly, because its actions have led to much higher prices for imported oil, and in so many words, we have admitted to ourselves we have lost control. Our leadership elite, seizing upon this idea, has declared that a crisis exists, and are already justifying enforcing direct political control of gas and oil. In summary, instead of an actual resource shortage alone, we have an emotional controversy, inflamed by an unhappy impact on ego, pride and the pocketbook, with an eager bureaucracy standing by, anticipating a political windfall.

Professor Addelman estimates that the OPEC action currently costs the American public an extra hundred and fifty billion ($150,000,000,000.00) dollars annually. I would say, since our political leaders cannot get their hands on OPEC, it is easy to point to the energy industry as being the culprit.

Now, if the reactions of the average U.S. citizen

can be judged impartially, one might conclude that the American people are far from being impressed. However, this is not true of one of our most important vested interests, namely Government. Its attitude is that of a fire department, reacting to a four-alarm blaze, with all sirens going full blast. Bureaucracy to the rescue. Politicians man the oars. Is this attitude likely to lead to a rational course of action?

Allowing the price mechanism of a free market system to operate internally is also a suggested national energy policy. Most natural resources produced by foreign nations are available at a price which are first subject to the approval of their host nation. The Canadian Government, for example, currently bars its corporations from making new agreements with companies in other nations for the development of Canadian resources without its approval in every detail. It is a sad day for world trade when nations feel compelled to intervene and interfere with the free market, which contributes most of all to international economic growth. But we must live with the facts as they are, not as we wish them to be.

Another long recognized truism is that any nation will intervene in the affairs of another if it fears that its own life is at stake. For example, Japan used the American Oil Embargo as a reason for declaring war

on the United States. Japan's military leaders did not believe their country could exist by buying and selling natural resources at arm's length, and hence, it demanded military dominance over these resources.

The post-war experience has confirmed that Japan can exist and compete successfully without such dominance. But at the time, all-out war seemed to the Japanese leadership elite to be the only course open. Now, more than one responsible authority in the United States has given serious consideration to similar military action to break the OPEC stranglehold. Should foreign powers tighten the vise beyond which political leadership is willing to accept? And again, this contingency stirs emotional fears on all sides of the energy questions.

Authorities have observed for centuries that man's ability to plan, to predict and to dictate the control of future events has failed miserably. When compared to the promise and the hope held out by the creators of such grandiose plans. Sometimes the judgment of a particular nation as to whether or not it should undertake various actions is so poor that the private sector is given the opportunity to fill in the gap. For example, John Cabot discovered North American in 1497, but England's leadership elite saw no opportunity in North America for economic gain, therefore, for over a hundred years, only a few weak and

unsuccessful efforts were made to develop this great, newly-discovered continent. However, in 1606, a group of aggressive investors organized a joint stock venture called the Virginia Company for the purpose of creating a settlement in North America. They hoped to sell land and make a profit. Now, the Crown did not put up any money for this apparently senseless purpose, because the King and his advisors were convinced that there was nothing over here worth fooling with.

Now, between 1606 and 1640, that's thirty-four (34) years, eleven (11) such companies were organized, all privately funded by thousands of private investors throughout England. Fortunately, the Royal Government was wrong at the time of the early settlement of North America, and you and I, and our ancestors have been profiting from this failure of the experts for many years. The fact is, that virtually all of the efforts to colonize the United States were funded by private groups rather than by the Crown, made it difficult for the kings to defend their unilateral authority over such settlements, so for a hundred and seventy (170) years, England granted frequent changes in charters, terms and conditions and reaction to the continuing and almost unsatiable demand of the colonists. And once again the kings were wrong. Out of that hundred and seventy (170) years of turmoil arose the

Declaration of Independence, and our liberty today.

But, if Government leaders and planners were wrong then, they haven't changed much, because they are still trying to decide what is best for us on the basis of what they predict will be our behavior in certain conditions. And the planners are just as unsuccessful now as they have always been. The imposition of authority has always been divided into two extremes: one, the command role, and second, the voluntary role. Strangely enough, command authority is nowhere near as strong as it sounds. Princes early learned to issue commands reluctantly, until there was some willingness on the part of their subjects to obey. Otherwise, such action was an invitation to disaster. Thus, the command authority, except by the most rigid and despotic of rulers, was seldom used in the extreme. Rather, the command authority was tempered by developing in advance a certain amount of voluntary desire to cooperate from subordinate bearings and citizenry, alike.

Such cooperation was usually secured through coercion or promises of gain. Our experience has clearly confirmed these societies which contain the most voluntary cooperation from their citizens offer the greatest potential for personal freedom and improved economic conditions.

The United States of America, was the first major democracy to demonstrate that fundamental truth,

After all, logic demands that command authority is best held in abeyance until a crisis truly arises, and is fully recognized. Then the citizens welcome plans to overcome the crisis. But until such time -- the citizens usually are dubious about command authority. The leader who is best able to win voluntary support, and cooperation, is the leader that best serves the people. If these generalizations are true, and if we believe them to be true, it would appear logical to first consider a solution to an energy crisis that has the greatest characteristic of a hundred (100%) per cent voluntary participation from all parties. This best might be called -- a plan called, "Turn everyone loose and do nothing." This does not bar certain limited target actions which might be undertaken by Government without damning the motivation of the free market mechanism and the spirit of experimentation.

For example, subsidy for efforts to develop alternate sources of supply in the case of the energy crisis. Now, we are the best educated society in history. No one else even comes close. The widespread result of this education, however, has led to an increasingly large leadership elite guided by social engineers, who want to impose their will as members of government administrations and academia. Now, their desire is only natural. The more experts we have, the more demands that are made on the

political leadership to adopt their concepts and value judgments. The reassuring thing, however, about the American political system has been the reluctance of the leadership elite to unilaterally exercise its judgments over the population. And until recently, the intellectual branch of the leadership elite never had that much influence over the political branch.

But, in the past fourteen (14) years, the leadership elite among the Congressional staffs, Government bureaus, academia and the news media has become more ascendant. Many of this group have seized upon the energy crisis as a marvelous opportunity to demonstrate their ability to guide the nation in their preferred manner. They are sincerely convinced that their methods will out-perform a free market system.

Now, upon examination, we discover that such intellectuals have captured nearly all the high level positions in the current energy administration. Not one industrial or business leader can be found among those most commonly charged with designing and administering the proposed programs. This is not to say that the free market system cannot gain from the political framework headed by a national leadership elite. For example, through the intelligent use of taxing authority and strong motivation that can be created from the movement of funds into desired

areas, such taxing authority can also be clearly specified to the total satisfaction of the citizens, who, in certain instances, have come back to the Government and said, "We think we should tax you more -- that you should tax us more, because we can see those funds are being used effectively." Does that sound remote? On the contrary. One of the most important and successful taxes ever applied in the United States was enacted some twenty (20) years ago when a special four-cent-a-gallon levy was placed on gasoline. A firm, legislative mandate, that one hundred (100%) per cent of those funds would be used to improve the highway system. That tax could now be increased several cents a gallon, and few would protest, provided its use was for that same purpose. People do not mind paying for what they know they want, and for what they know they need.

Now, the oil companies really have no one to blame for the camel being under the tent but themselves. During Eisenhower's Administration fear was expressed that imported oil would destroy the domestic oil industry. Industry leaders, particularly those of independence, persuaded Congress to pass laws protecting the American oil industry against low priced imports. Once any government has put its nose into your affairs, it is extraordinarily difficult to ever get them out, even though the need might totally pass.

For example, the Federal Government retained control over the price of natural gas due to the emotional reaction of President Eisenhower, who decided that the facts made no difference. Because the oil companies had aggressively opposed natural gas control, he reasoned they had overreached. Wham! Down came the hammer, and the industry has never recovered. From a high of fifty-seven thousand (57,000) wells drilled in 1956, the bottom point was reached to the twenty-six thousand (26,000) wells in 1973. In fact, the first increase in gas production has only been recently recorded. It was occasioned by a sharp increase in the price for natural gas. However, this increase has not had enough impact to cause our politicians to approve discontinuing controls in order to get even more gas. Yes, for some twenty (20) years we have had a system of Government control over oil and gas. It has built its own bureaucracy, the Government is in no position to get rid of its own, and Congress is not likely to get rid of it without a battle from the many who have a vested interest in seeing that centralized control not only continues, but preferably is expanded to include a rope around the entire energy industry's neck..

Now, this has very little to do with being democratic or republican, it has to do with human nature. Once the leadership elite gains control over something, it

is not generally within their mental framework to surrender, even if you do have good reasons or conditions. There are some exceptions. The annual budget for the Texas Railroad Commission is roughly ten point four million (10.4,000,000). This covers adminstration for one-third (1/3) of the oil and gas produced in the United States.

Yet, the proposed budget for the Federal Bureau of Energy exceeds ten billion ($10,000,000,000.00) dollars, which is some two and a half to three billion dollars more than the proposed budget for all oil and gas exploration for 1976. This is absurd, to propose the administrative policy to the energy program represents distortions of the most wasteful kind. Absurdities often sound like they make common sense when first uttered. For example, we recall politicians of three (3) and four (4) years ago, who, on public television, loudly proclaimed that the American people cannot stand for a nickel increase in the price of a gallon of gas. They claimed that the broad spectrum of the American people cannot afford it. Now, this comment was made at a time when citizens of nations like Italy, France, England, Portugal, Spain, with less than half of our affluence, were paying a dollar ($1.00) and a dollar and a half ($1.50), and now up to two dollars ($2.00) per gallon for gasoline.

But our politicians have no qualms about making

such statements. Why should the politicians be realistic, although common sense long ago has clearly pointed out that the growing use of cheap energy for so many years has increased American consumption to such a high level that eventually, world resources would have to be tapped to furnish our oil and gas.

Thus, as citizens, you and I with our happiness over low prices are fundamentally responsible for supporting the leadership elite plans to propose, dispose, concoct, and create out of thin air, hundreds of different rules and regulations aimed at solving the energy problem, at hopefully little or no cost to ourselves. According to the promise of the politicians this is possible. Common sense tells us otherwise.

Barry Commoner wants to use the energy crisis to change our entire economic system, to permit only acts of social value. Now, the details remain murky, but we all know that he means the Federal Government. Others say, for example, we cannot have anywhere like as much personal freedom, we must accept less.

Another favorite slogan is "the lesser the better." Of course, all of these values are being expressed by people whose own personal positions are protected. They are safely entrenched in the universities, the bureaucracies, the professions, or supported by foundations

and tax-deductible gifts. And none of these members of the intellectually elite leadership hesitate to propose an energy solution based on direct orders being given to the vast American Middle Class, and they would prefer to become willing and happy followers of their version of the great central energy mind, with authority over all.

After all, logic dictates that if such authority can be swung on this issue, then others of a similar nature are likely to solve the next crisis.

The energy solution being considered by Congress envisions an Administrative cost of ten billion (10,000,000,000.00) dollars a year, putting in an incredible amount of bookkeeping and market distortion, all based on the assumption that the United States should be perfectly willing to pay an overseas supplier twelve, to sixteen to twenty ($12.00 to $16.00 to $20.00) dollars a barrel, while those in the United States who sought out in the past, and drilled for the same product, must be paid a much lower price. The incredible discrimination of this policy escapes the bureaucrat. It amounts to confiscation, however subtle, as well as a form of colonialism. The expressed justification for the Federally proposed energy program is that it means -- it is a means of eliminating fantastic windfall profits to the oil industry.

Let's examine that interesting judgment --

approximately eighty billion ($80,000,000,000.00) dollars is one estimate of the annual so-called windfall profits. Who knows? It's all conjecture. But definition of the term "windfall" is taken to mean profits that do not have any cost basis. So if it were eighty billion ($80,000,000,000.00) dollars in additional windfall profits to American oil companies, thirty-eight point four billion of that would have to come back to the Government in the form of corporate taxes, and thereby relieve the tax load of the American citizens by an equal amount. If there is a legal windfall, if there is a windfall by legal definition, approximately, then, one half of that amount goes back to the Government. That's for starters.

The estimated budget for the Federal Energy Departments to administer this plan is ten billion ($10,000,000,000.00) dollars a year. If oil and gas was free of control, surely the requirement to monitor the oil industry would be reduced significantly, perhaps as much as five billion ($5,000,000,000.00) dollars a year. Over a period of five (5) years, that would be a savings of twenty-five billion ($25,000,000,000.00) to the public tax burden.

But the points of the free market system approach argue that we should be more interested in exploration for additional oil. Therefore, that forty-one

point six billion ($41.6) would be left in the oil companies for investment in paying the higher cost of expanded oil and gas exploration, and that if it is invested, no additional re-invested, no additional tax would be levied. If it is not re-invested, then taxes applicable to excess profit should be levied, and under this program there would be, then, in the long-run, no windfall profits.

The oil industry -- if we have any confidence in our independent economic system, and if we have any respect for the record that has been built up over the years, at least the energy industry should be given the opportunity to do the job before it is blackballed out of existence. Johnny Blair said in his excellent book, <u>The Control of Oil</u>, published last year, "The conclusion is not that the free market has failed, at least with regard to the petroleum industry, but that it has not yet been tried." And John Blair, one of the most respected Washington bureaucrats -- background entirely in government -- made that conclusion after a long and complex study.

I personally do not think that anyone in this room, or anywhere else, could possibly know whether the free market could do the kind of job that needs to be done. Really, that makes little difference, because the second reason why we should try it is that six (6) years from now if it is not doing the job, we can always switch to a

Government-dominated system based on command authority. Even if the explorations success ratio of oil and gas discovery drops fifty (50%) per cent over the six (6) years, we would still have ten (10) to twelve (12) years, or more, in reserves left, six (6) years from now, assuming the same rate of imports. And with the vast New Mexico reserve, we would have even greater safety margins.

Within six (6) years, the results would be clear for all to see. Many believe the free market system would work to the maximum benefit of the American people. I think all of us agree that if it would, it would be preferable to other courses of action, and to make a long story short, we can always reserve a command authority approach for down-the-road action. Four (4) years have passed since OPEC, and little has been done. Action has been piece-meal. It has been catch-as-catch-can, and there have been tremendous inequities. The Government found their own set of rules and regulations destructive because of the effect on both the morals and the morale of the citizens. We certainly want what works best for all concerned, including the economic system, the consumers, suppliers, employees and investors.

Let's take it step-by-step: number one, turn back to the free market system for oil and gas, schedule a re-evaluation at the end of six (6) years, take off

Government controls a hundred (100%) per cent. This approach has not been tried, and it is fundamentally unsound to veto what worked for such a long time without trying it out before closing the door.

Second: follow the practice in western Europe and pass along the full cost of gasoline to those who use it. The idea that any group should pay less for a fundamental commodity is absurd. We don't do that with wheat or coal, and we should not do it for oil. It is the only hundred (100%) per cent way to insure conservation. Roger W. Sant, Director of the Energy Conservation Center at Carnegie-Mellon estimates that the U.S. replacement costs are now fifty (50%) per cent above consumer prices. That's replacement costs for oil and gas, or one hundred billion ($100,000,000,000.00) dollars per year above the present total consumer cost.

Number three: Do much the same with gasoline as we have in the subsidy of food to the disadvantaged on behalf of the lower ten (10%) to fifteen (15%) per cent income segment of our population. Such a specific subsidy would not be illogical. The automobile is an absolute necessity in all levels of our society, and that fact is not going to change.

Number four: take a fixed sum of approximately five cents ($.05) per gallon and create a fund similar to

the established highway-type tax program, and use it exclusively to find and develop alternate sources of energy, for example, solar, shale. Include a legislative mandate that those funds can be used for no other purpose. Double and triple efforts to find safer ways of disposing of contaminated materials produced by nuclear plants, and breeder reactors. Environmental subsidies could be provided that safely accelerate the search for oil and gas. Provide an added incentive to switch oil burning plants to coal burning capability. The surface mining of coal could be stimulated by funding through insurance programs which would guarantee adequate restoration of land backed by the Government, and thus avoid undue damage to the environment.

Number five: Exclusive for the purpose of managing the funds created by the special surtax, subsidize and accelerate the development of the more exotic energy sources, curtail the activities of the energy bureaucracy, to that of being a close monitor of the oil and gas industry, coal, energy, all forms of energy, and collecting the data necessary to make the decision six (6) years from now as to the next phase of energy development.

Number six: Use excess profits legislation to insure proper use of any windfall profits not re-invested.

Number seven: Complete the development of the

one-year domestic supply of storage capacity of oil. Now, conservation is easily preached by the experts. Opposing wastefulness is like being against sin. However, an economy geared to gas and oil, the Government Energy Plan does not provide enough incentive to reduce waste.

The leadership elite appears to be unwilling to pay the price to make conservation effective. It would require a far higher consumer price in gasoline. No one is willing to tell the American people to pay a dollar ($1.00) or more for gas. When that happens, and until that happens, we will not have measurable conservation. In the meantime, the goal should be to fund the cost of accelerated exploration necessary to more than double the production of gas and oil. The price of gasoline would then rise and fall based upon natural, competitive market conditions, including the ability, or lack of ability, of OPEC cartel to remain united. Six (6) years from now, the wisdom of an even more punitive tax to insure conservation could be debated. The six-year record would be available, emotion would have been removed from the battle, command authority could then be put into effect if the progress and results in the free market system were not satisfactory.

Now, a more interesting experiment in thinking takes place if we move the decision-making process back

fifteen (15) years. What would have been the likely course of action if OPEC had developed in 1962? Kennedy was President. The nation enjoyed high morale, and was confident of its future. In 1962 Kennedy was faced with a recession. Among his recommendations to Congress in January, 1963 was a reduction in the capital gains rate from twenty-five (25%) per cent to nineteen and a half (19 1/2%) per cent. He reasoned that this might be interpreted as a signal of his confidence in the private sector. For whatever reason, the economy promptly moved forward. Now, Kennedy could have recommended a new national bureau to solve the economy crises. Instead, he decided to rely on private enterprise. If that was logical then, would not Kennedy have used the same approach on energy?

President Carter, in his speech on April the 18th of this year stated, "The country is running out of oil." He cited his proof that oil production has fallen. Now, upon close examination, one realizes that one statement may have nothing to do with the other. If production is falling, it could be for a different reason. For example, if drilling of wells had declined during that period from which production of oil today would be in the ordinary course of event taken place, then another answer surfaces. And true enough, on examination of the years 1956 to 1973,

we find that each passing year there was a reduction in the number of wells drilled, both exploratory and development. The decline was more than fifty (50%) per cent -- fifty-seven thousand (57,000) in 1956, and twenty-six thousand (26,000) in 1973. Thus, the decline, the current decline that we are now experiencing in production should have been expected regardless of whether or not we have an energy shortage.

Kennedy might announce his solution, if he were here today, by saying, historically, when we have declared a national goal such as in 1960, when we resolved to put a man on the moon, we have always called upon industry to supply the expertise, the knowledge, and industry has not failed us. Kennedy might say, for example, I have met with the leaders of the oil industry, and they say they can double oil production given the incentive, opportunity and funds to do the job within approximately three (3) to four (4) years. It would not require a hundred (100%) per cent increase in staff. Perhaps forty (40%) or fifty (50%) per cent. But it would require a significant increase in hardware, machinery and equipment, drilling rigs, pumping rigs, and this could not come onstream overnight. Because of the emphasis on speed, costs would be sharply higher. The infrastructure to support development and exploratory well drilling at the

rate of eighty to a hundred thousand (80,000 to 100,000) wells per year can best be accomplished through freeing the market price of oil and gas.

President Kennedy would insist on the same safeguards against exhorbitant profits as would President Carter. The difference is in the philosophical approach. Carter has chosen to rely upon the intellectuals, bureaucrats and professors who are obviously looking inward rather than on the industry to create means and mechanism of doubling available energy. The intellectuals would rather believe it could not be done than to let the free market system demonstrate that it can be done.

Now, no doubt, in any solution, the Government will play an important role, but why should it play a dominant role until all other solutions have been tried and found unsatisfactory? The history of the United States does not warrant such massive intervention in a peaceful and prosperous era. The record of overwhelming Government interference does not justify confidence. The countless private decision processes that are required, and the vast and complex experience-dominated energy industry is not condusive to Government making decisions. Government leaders are not qualified to make the multitude of capital venture risk decisions, nor is it qualified to equitably design and administer rules and regulations involving a

six-tier gas-fixed price system, and a four-tiered structure -- price structure for oil. Government's credibility in these fields is lacking. Its role has always been that of an adversary, and that kind of role cannot be changed overnight. Even the Government admits that what we need, also, is maximum motivation. Logic dictates we should first try a good, old-fashioned return on investment motivation. Just as President Kennedy, in 1963, appealed to that emotion, so should we today. The industry record clearly justifies a first-shot in making the free market system work. Even if there is a decline in oil-gas reserves discovered per foot drilled over a period of several years, it could be offset by drilling more wells, and thus far, due to Prudhoe Bay, there has been no such decline.

Mr. W.L. Adams, Vice President of Exploration for AMOCO -- operating unit for Standard of Indiana, says that his company's rate of discovery of BTU's reserves per foot of drilling has held steady for about fifteen (15) years. So if the oil exploration activity in the United States of America, in 1977, instead of being an expected forty-one thousand (41,000) wells had and was in fact eighty-two thousand (82,000) wells, this could result in the doubling, or near doubling of the total reserve discovery. This assumes that the extra forty-one thousand (41,000) wells were of a similar pattern, excluding

shallow wells.

The industry's capability to do exactly what I have outlined is there, but it is waiting to be tapped. Now here is a drastically different scenario. Let's assume that there was no atomic bomb, and nevertheless that pact did come into existence in 1973, and in the year 1977 a conventional war broke out between the United States and Russia. Also assume that in the early stages, Russia was able to cut off the supply of Middle Eastern oil from the United States. To whom would the Federal authorities in Washington turn to solve their oil crisis created by such a series of events? The answer is, they would turn to the oil industry, not to Government administrators, and they would ask the oil industry if the number of wells could be doubled and tripled, and the oil industry would say, "yes". The hundreds of companies which make up the energy industry today have multitudes of plans for development of resources, which they do -- they are not able now, currently, to fund under a true demand situation. If we were able to fund these wells, and these plans, we could easily double production and go from there.

After all, in 1956, in the United States, the oil industry drilled fifty-seven thousand (57,000) wells. Many other industrial corporations doubled, tripled and

quadrupled whatever they were doing in 1956, and U.S. oil industry could easily do the same.

But remember, the stepped-up pace would be expensive. Geologists would have to be brought back into the oil industry, many of whom left in droves in the period between 1960 and 1972 when domestic exploration and development was so sharply reduced. Seismic equipment, drilling rigs, pumping, all these types of expenditures would have to be contracted for and funded. The oil industry could bring onstream the kind of production that we are talking about, but the cost would be high. But, there would also be a vast increase of employment in the oil industry, and the money that is currently going to the shieks of Arabia would now be going to the American domestic oil industry to double and triple production.

In a free society, we would mostly agree that the avoidance of extensive Government intervention and control offers maximum advantages to society. Why then, does the Government suddenly think that the only solution to the energy crisis is to turn it over to Government administrators. After all, the country administered excess profit tax laws for several decades, arising out of the Second World War, so there would be no reason why that principle could not apply to make sure oil companies do, in fact, re-invest

their funds in drilling exploratory and development wells over and above their current rate. The evidence is that we have a classic case of Government leaders wanting to administer, even in the face of all the facts that have indicated it would be better if they did not do so.

In addition to this particular desire, is a strong support from the majority of politicians who are looking forward with a great deal of excitement to the increased tax revenue.

In closing, these remarks today are not likely to have any effect on the actual energy bill being considered by the U.S. Congress. But we should all mark this occasion as one of failure of the leadership of American business. Few outside the energy industry have stepped to advocate a free market energy program. Part of this reluctance is due to the heavy stroke the Government bureaucracy has on American industry. For example, Henry Ford, when asked recently his opinion of the energy policy, replied, "I am not qualified to answer that question." Now, imagine a major business leader, in our independent economic system, not qualified to recommend that the free market be given a chance to do a job. Mr. Ford's company is subject to considerable Government regulation, and he does not want any more trouble out of Washington than he already has. Much the

same can be said for most of the other business leaders. Each is hoping to be left alone as long as possible, therefore, we can conclude that almost certainly the Federal Government will dominate the energy industry.

It is no credit to any of us that this has been permitted to happen.

Thank you.

(Applause.)

MR. EDWARDS: Thank you, Mr. Corn, very much. We have time for a few questions, so if you will please step forward, Mr. Corn will be happy to try to answer them. No takers?

MR. GEEHAN: Yes. I'm Pat Geehan, Bureau of Land Management, and I sure appreciate your comments.

In your recommendations you have a six-year waiting period. What's magic about six (6) years?

MR. CORN: That's a good question, because I had to decide on how many years to recommend, and there were two factors involved. One, and I think it's important, is that we have to have enough time to see how much safety margin we have over and above a future period of time. If the crisis is something that cannot be resolved, despite all of our efforts, we still have to leave adequate time, or should leave adequate time, to go into a command role, which would put heavy penalties on the waste and the use

of gas and oil, and would certainly restrict everybody, and we would have rationing, and we would have all kinds of things, so we cannot go too far forward down the line, but we cannot make it too short for this reason -- the amortization of the cost of this kind of equipment can be done over two, three, four, five years -- it can be done over one year, or even two years all together, and the oil industry is not going to gear up a tremendous -- tremendous purchase, if they can only see a twelve-month or twenty-four-months trial period. It has to be both, and the manpower situation is as critical as the machinery. These people have to come back in and get into their positions they were in twenty (20) or thirty (30) years ago, the Government has to come back, and that's a three (3) to four (4) year project. So, let's assume that under my scenario four (4) years from now we would then be at a much higher level of discovery, be able to evaluate these reserves as they are coming onstream, so that between four (4) to six (6) -- in the fourth, fifth and sixth year we would have the confirmation of the first three (3) to four (4) years.

MR. GEEHAN: Thank you.

MR. EDWARDS: Anyone else?

(No response.)

MR. CORN: Thank you. I enjoyed being here,

very much.

(Applause.)

MR. EDWARDS: Thank you again, Mr. Corn. I would like to remind you that the message board directly behind you out in the lobby has some messages. Your offices are calling you frantically. Please check the board. There will be coffee now for fifteen (15) minutes. Thank you.

(Whereupon, a breif recess was taken.)

MR. EDWARDS: All right. May we please come to order. Our next speaker is our only woman to speak to us thus far this morning, and this afternoon, and I think that she is well qualified to present her perspective.

Carolyn Johnson is the Western Representative of the Environmental Policy Institute, Citizens Coal Project, located in Denver, Colorado. She was formerly Chairperson of the Mining Workshop for the Colorado Open Space Council, and Acting Coordinator of the Western Coalition, also located in Denver.

Prior to her environmental efforts, she worked for the U.S. Geological Survey in Denver, Colorado.

Carolyn has served, or is serving on numerous environmental advisory board committees. She has received a B.A. Degree in Literature in June of 1964 from the University of Missouri, in Columbia, Missouri, and graduate

studies -- or has done graduate studies in geology in 1965 and 1966. So I present to you at this time, Ms. Carolyn Johnson.

(Applause.)

MS. JOHNSON: Thank you, very much. It is really a pleasure to be here in this beautiful facility, and to have such a diverse and balanced audience as we have.

The title I have been assigned today is, In Support of The Environment, within the text of this conference theme of "Changing Times".

Over the last ten (10) years, tremendous changes have occurred in the political issues that are current in the public's thinking. Ten (10) years ago it was the booming economy, the Viet Nam War, Civil Rights and social unrest that made headlines and grabbed our attention. In the popular mind, energy was something you hoped to have when getting out of bed in the morning. Environment was a four-bit word for your surroundings.

Today, those two words have taken on important meanings, and come into popular usage for essential elements of our lives, and they represent two of the big political issues of the '70's. The nation seemed to discover the two issues overnight on the first earth day in 1970, and the Arab Oil Embargo in autumn of 1973. However, as we all

know, these two have been in the wings all the time. But, upon discovery, the nation really sat down to the task of grappling with the processes to set new directions for the future.

Energy and environment are, of course, not mutually exclusive, and each issue contains large amounts of the other. The efforts to set new directions have been most specifically in the form of new laws. Major pieces of legislation have been passed dealing with these issues. The Clean Air Act, the Clean Water Act, the Department of Energy organization, toxic substances, strip mining, National Environmental Policy Act, B.L.M. Organic Act, endangered species protection, and many, many others, major and minor.

With the new directions have come a spate of new agencies, and this high level of activity has also occurred in similar fashion at the State and local level.

This stage has been characterized by national debate, formation of new alliances and new interest groups, and the rejuvenation of old ones, an intense level of political activity. New policy directions have been set for many of these big issues. As a nation, we have accomplished much. Of course, two notable areas are in Congress now, still undergoing this formative process: reform of the 1872 Mining Act, and

the Big Energy Package.

The changes we are seeing now is toward implementation of these policy directions, putting these policies to work in our daily lives. I believe that we are moving away from the emphasis on the legislative and more on to Agency, and to our own daily lives.

The changes I would like to talk about today are the Bureau of Land Management and the Organic Act, and secondly, several aspects of Federal coal policy.

Before talking about the present situation, I think it is helpful to briefly review the past public land policy and the Bureau's history. And in reviewing the history of the national public domain, which is public lands, it doesn't take a streak of cynicism to wonder that we have any public domain left at all. It began with the Continental Congress passing the Ordinance of 1785 for survey and auctioning of the public lands between the eastern mountains and the Mississippi. Land was to be sold to individuals for one dollar ($1.00) an acre in parcels of six hundred and forty (640) acres or more. The auctions were to be held only on the eastern seaboard. The purpose was to make land available to the common person, to insure the nation's claim to that land by having settled citizens there, and to help pay for the Revolutionary War. Six hundred and forty ($640.00) dollars and six

hundred and forty (640) acres were too much money and too much land for families to farm at that time, particularly by hand. The intentions of the Act were soon left behind, and some greed and monopoly came into it, and by 1792, for example, over half of New York State had been bought by land speculators and a few individuals for pennies per acre. The pattern had been struck -- lofty intentions for public domain in principle -- greed, corruption and poor implementation in practice -- and it was repeated several times throughout the next one hundred (100) years.

Around the beginning of the 20th Century, new ideas began to stir. As a result, new directions were begun for part of the public domain as a result of the increased interest and new awareness by the public. The Forest Service was created to scientifically manage the national forests. The Park Service started for the purpose of preserving primarily outstanding scenic, geologic and historic areas for the enjoyment of present and future generations, and later the National Wildlife Refuge System was begun. However, the direction of the rest of the public domain was as confused as ever, with the warring sides split between disposal of these lands to private and state ownership and retention of these lands under professional management for the benefit of the nation. This battle continued even into the present decade, with the advocates

for disposal slowly falling down.

BLM's own history has been confused and divided, beginning as an amalgamation of the General Land Office and the National Grazing Service in 1946. Further, it is also burdened with a doubtful future, often considered a temporary agency.

The other federal land management agencies started with strong outstanding leadership, such as Pinchot of the Forest Service and Stephen Mather of the Park Service. This early leadership molded the character and reputation of the Agency through the years, and the effects of that leadership remain today in some of the management policies of those agencies, yet, there is no one personality with which to associate the BLM.

BLM has had roughly three thousand (3,000) different laws to administer, mostly at the same time, which often conflicted with inadequate budgets and staffing to try to administer them. It is responsible directly for four hundred and fifty three million (453,000,000) acres and has partial responsibility for an additional two hundred and twelve million (212,000,000).

The potential and promise of BLM looks tremendously exciting, to me, at this particular time. BLM has survived, the public domain does remain. BLM has some problems, but far more than just surviving, it has

won an opportunity for the public it serves to embark on a mission to truly manage public lands for the public good.

Congress has passed the Organic Act, which sets forth a comprehensive mandate -- something most agencies are given at their inception. A new Director must be chosen. The conjunction of these events means that there is an unparalleled opportunity for the nation to set a new course.

With the Organic Act, BLM can truly come of age. The Organic Act, which is fully entitled the Federal Land Policy and Management Act, was passed just last year. It sets a comprehensive policy in broad guidance on implementing that policy for the agency.

For the first time, the Bureau has much of its authority in one act. By its own estimate, the Act replaces many of the existing twenty-five hundred (2,500) laws on public land management, and many new areas are included in the Act. Some of its important revisions are these:

First, under a multiple use, sustained-yield management, the Act mandates land use plans to be developed for the public lands that meet a new set of criteria. Included in these are provisions that give priority to designating and protecting areas of critical environmental concern that weigh long term benefits to the public against short term uses, and provide for extensive coordination

with the plans and management of tribal, local and state and other Federal agencies.

And lastly, that provide for meaningful public involvement.

This means that the public and various units of Government have a real opportunity to try to work out a coordinated approach to management of all types of land.

Second, the Act provides for recording of all unpatented mining claims within three (3) years, and annual reporting of mining claims. Until the Act, it was virtually impossible to determine what claims had been established on an area of public lands, which was proposed for lease, transfer, or sale, or some sort of use designation.

Third, for the first time, BLM has a fairly comprehensive mandate to enforce its regulations with fines, injunctions or imprisonment. One of the long term frustrations has been the inability of BLM to effectively deal with abuse and theft of public land resources when they do occur.

And fourth, BLM will inventory roadless areas for wilderness characteristics and make recommendations for Congressional designation, which is similar to the Forest Service System.

There are many other provisions of the Act that

I have not covered here. For this Act to be implemented fully, several key components have to come together at the right time. An ample budget that addresses all the areas of the Act, a full set of regulations and procedures, and particularly public participation and support. An additional ingredient -- critical in my opinion -- is the backing and the support of the Department of the Interior -- the Administration -- to give BLM a chance and the freedom to prove themselves.

It is my understanding that a Director of BLM is still being sought. I am pleased at the Department's care and concern for finding a well-qualified person. The agency and the gigantic tasks ahead deserve that concern. However, of equal value, is taking the agency out of the limbo of being Directorless.

Despite the absence of a Director, BLM has commendably begun implementing the Act in several areas. Regulations are being published and new manuals written. The Bureau does go into implementation of the Organic Act with some problems, caused in large part, I believe, by its lack of institutional purpose in the past, when no clear goals were apparent.

First, the Bureau seems to lack a sense of pride in its work, an espirit du corps. Often, this can be attributed to individual discontent, but there must be

some reason behind that, because employees express feelings that their agency is third-rate, and, thus that they are also third-rate for working there.

Pride is an intangible quality, but its presence reflects on every-day actions as well as major policy decisions. It gives assurance and confidence even in the most difficult situations. In my observation, by far the large majority of Bureau personnel are well-trained and competent.

I hope that under the Organic Act, that there is proof as set for this agency that this can be overcome.

Secondly, the Bureau has no broad-based constituencies and does not seem to be asserting itself in effectively trying to develop them. With the varied responsibilities of BLM, from wilderness, mining, to grazing, there is need to seek out, inform, and work with these constituencies on a continuing, long-term basis, in order to forge some alliances that go beyond the immediate issues. The advantages of developing these constituencies would be many, including support and understanding of the agency's many programs and goals, and improvement of the programs. Constituencies must be actively sought out, however. Effective ones don't just happen, and they must be actively sought in a spirit of equity, because good allies do not become, nor should they be desired to,

automatic yes-people.

BLM is suited, ideally, by way of its organization, to make this communication effort with its dispersed offices at the area, district, state and national levels. Coordination with state and local planning agencies, with private business and other private interest, is essential for the effectiveness of any land management program.

Turning now to coal policy, coal policy on development, use, leasing and reclamation has been in a state of flux and upheaval for the last decade. I believe that Assistant Secretary Martin described some of this upheaval this morning, but some clear directions are immerging. Coal has been substantially under-priced as a source of energy, and the prices are increasing. The use of coal will increase in its use and it is becoming a preferred fuel. That development and use will be within the framework of safeguards to protect the environment, the landowner, and the communities.

Third, coal on tribal, state and federal lands will be leased on the basis of fair return for the owners, and the negotiation of lease terms will be open to broad participation and scrutiny.

An Act which will have tremendous impact on the states and the coal mine operators, private groups, and

indirectly on Federal land management agencies is the Strip Mining Act, signed by the President in August. After a long debate and two (2) vetoes, the Act was passed. The new Office of Surface Mining has been established, and its Director, Walter Paine, I am told, was confirmed last week. And, the Act is beginning to be implemented, with one proposed set of regulations that are -- and a final set to come out next week. I would like to make some comments on a few of its provisions which I feel are important to achieve the goals of industry, Government, and the public.

First, the Act provides for State regulation and enforcement when a state has submitted a program to the Department of Interior. In order to be approved, the State's program must at least meet the Federal Act's standards for mining performance, bonding enforcement, funding, and a program for designating areas as unsuitable for strip mining. If a state fails to submit a program that meets the Act's criteria, then Federal programs will be implemented.

The states then are empowered to carry out the provisions of the law. Many states will have to change their present mining and reclamation laws to include the type of provisions in the Act, and increase their staff and personnel training.

The State's regulatory agency which carries out

mining and reclamation enforcement will need to be thoroughly familiar with all provisions of the Act. Therefore, cooperation among all of us, including Federal agencies, to work in formulating the regulations, will be essential.

A second provision I would like to discuss is the one allowing for citizens to report on suspected violations. The proposed interim regulations provided for that person's identity to be kept confidential by the Department, if the person wished. As several of you are aware, at the Denver hearings on the proposed regulations, many coal company witnesses opposed this provision, and others, some of the public interest groups, supported this idea.

I think this controversy and its basis is really an example of the fear and suspicion working on both sides. Coal companies fear that a barrage of complaints will be filed against them, and that they will be unable to defend themselves, and many will be unjustified.

The public interest groups fear that without a citizen reporting and confidentiality feature, citizens affected by coal mining will be unable to get prompt relief from illegal conditions affecting their lives and livelihood.

Since citizen reports are mandated by the law, perhaps one way to alleviate the fears and to secure working with the law is to hold a series of workshops which will educate all sides on the law's intent and its provisions. These workshops should be held in the coal fields, and be done regularly to keep operators, State and local authorities and citizens informed and up-to-date on the law. In Colorado, when we started trying to go through the process of having a new reclamation act, industry and the environmentalists, other public interest groups, such as the League of Women Voters, sat down together to negotiate on many aspects of this law. I would have to say that in all truth, none of the three (3) or four (4) types of groups that were involved were happy, totally happy, with the final result. But that's part of the democratic process, we each had to move.

And since then, we found that we formed many levels of communication with each other which we did not have before, and I think that this is essential in working out some of the problems, and I would like to see this done on the Surface Strip Mining Act.

Another area in which substantial changes are being made is the nation's coal development. Congress, the courts, and the Administration have set new directions.

From a western perspective, this Administration

has acknowledged a policy that the western states will not become an energy colony. This reversal of the Nixon and Ford approach, at least as perceived by many, is, I think, largely due to the people and the State and Tribal Governments of the west who led the reform and effectively sought the nation's attention to their concerns about local participation, and others, such as uncontrolled growth and environmental destruction, limited water and inadequate financing. We're seeing now, some new directions.

Public involvement has been intense at most levels, as reflected in Congress, and by the development of State and Tribal coal policies, and some new directions from the Administration.

The Department of Interior is now making a review of the coal leasing system under the mandate of the President's charge in the May environmental message. The review plan has several major elements, including determining whether existing coal leases can be developed in an environmentally acceptable manner. Secondly, developing standards to schedule new leasing to meet production requirements. And third, developing standards to determine whether lands are capable of accepting impacts of strip or deep mining and related coal development.

The Department has come to an agreement with the

Department of Energy on production goals. This review has been underway for several months. To date, we have not been involved. To invite participation of the public would be consistent with this Administration's goals of openness, and would be consistent with the recent history of public involvement in shaping coal policy in all forms.

I must admit that public participation in the coal review may present some problems for the Department in coordination and mining. But, democracy, by its very nature, cannot be smooth and totally managed. I believe that the Department would gain more benefits than losses from public participation by industry, public interest, and State and local Governments, all of whom have a vital interest in coal leasing.

The theme of this conference is "Changing Times" and I began my talk by stating that I see a changing emphasis from passage of major blockbuster pieces of legislation to implementation of these directions.

In conclusion, I believe that this implementation process will be long, and at times, difficult. I believe that we do have a responsibility -- all of us -- to participate fully in this process, and there are many opportunities to do so. We cannot leave Government to the experts, if we hope to shape its course.

Thank you.

(Applause).

MR. EDWARDS: Do we have any questions of Carolyn?

(No response.)

No questions? Thank you, Carolyn -- oh, I'm sorry. Here's one right there.

MR. LUDWIG: My name is Jim Ludwig, and I am from Michigan, associated as a Consulting Ecologist with some of the mining companies. Several times this morning, and I think you emphasized it again in your talk, and that is the question of how to interface Government and environmental groups with industries -- it has come up -- and everybody seems to say, that, gee, we ought to do this, but somehow it doesn't seem to be happening very clearly. And I think that as someone who has worked with industry and found them to be very cooperative once the rapport is established with the client, I think the most galling thing that tends to happen from environmental participation is when -- what one might call an informed environmentalist -- attacks aspects of a project without having any factual basis, and then to see the informed environmentalist not support the industry that is being -- that is applying for a particular activity. Do you feel, and do you think that others in the environmental movement are beginning to feel at all your responsibility to, if I

may use this term, police your own ranks -- or our own ranks, since I consider myself an environmentalist, to attempt to correct misinformation when it comes under the guise of an environmental objection to a project. Or, do you feel that an individual should simply be allowed to -- as often happens -- dominate public hearings with misinformation, with the charges that can't be supported, but are very headline-making, this sort of thing. Do you feel, as an environmentalist, that there is any responsibility to speak to these issues on behalf of industry, or not?

MS. JOHNSON: Let me divide this into two points, then, if I may: most responsible environmental groups do make an attempt to insure that the information used by anyone who speaks on their behalf is correct. There have been instances where that hasn't worked out, and there is going to be more in the future. I think that there is another point at which we need to reach some basic understanding, and that is on the nature of facts themselves. I think any of you who -- if you have ever worked in, say, Congress, where you are trying to persuade a body to go along -- to know that there is at least two sets of facts, those that you use to bolster your side, and those that the other side uses for theirs. I think it's unlikely that in public hearings of the type that you

refer to that -- that those two sets of facts are ever going to meet, because naturally, everybody wants to present the best case for their side.

MR. LEWIS: I am Bill Lewis, Chairman of Natural Resources and Energy Committee, Arizona House of Representatives.

I conduct a lot of these hearings. I just wish that everyone could have came in to testify on environmental issues, was as well-versed and as attractive as you are.

MS. JOHNSON: Thank you.

MR. LEWIS: I would say that there are many fine environmental organizations that do testify in front of us, and I am sure that everybody that testifies is sincere. The people from the Sierra Club, the Nature Conservancy, groups of that type, usually appear very well-dressed, neat, behave themselves, but we have a few -- I will use the prefacing word, I was going to say the "fringe" groups, who come in to testify who, I think, give a bad name to all people who are interested in this affect. And, I think it dovetails right on the previous question. Isn't there any way that you all can get together and police your ranks?

MS. JOHNSON: I know one of the -- I used to work with the Colorado Open Space Council for a time, and

one year several colleges throughout the country send -- have intern programs where they work for three (3) or four (4) months of the year so they can get experience in the outside world, and they go into private business, they come to public industries like my own, and I was assigned an intern several years back from one of the college programs, and this person had -- shall we say very unkempt appearance -- one that is not generally accorded with a lot of trust in certain areas, and while I had no personal objections to long hair, none at all, I sat the person down and talked to them, and said, "We are working on the environment. I do not want your hair to become an issue. It is going to detract attention from what you are saying. Go get a haircut." I think that many groups take that stance. We have something else too important to dwell on that, and while our own personal objections just aren't there, publically there is a different perception, but I think, also in the environmental movement, you will find people of all sorts, including your people in this room. You know, they range from eighty (80) to twenty-one (21).

MR. EDWARDS: O.K. Any other questions?

MR. LAKE: I have one -- my name is Marvin Lake, I have an observation to put into a question. We have been much concerned, I am from Montana, and operate in California, and we have been much concerned about what we

have to do as mining people, particularly when we can compare with some environmental operations, such as the extension of this long trail that the Government is making from Canada to Mexico, using the old burro trail in the Sierras. We have brought up a question, since the Government has already expended around fifty million ($50,000,000.00) on it, and never files an impact statement, what is your stand on that? And they have proposed to spend three hundred million ($300,000,000.00) -- should they make an impact statement?

MS. JOHNSON: Certainly they should. I think if you look at the National Environmental Policy Act, it says, "an examination of the impacts". It does not say, "adverse only impacts", or "beneficial impacts".

MR. LAKE: Are you people, as environmentalists, speaking out to see why they didn't make that?

MS. JOHNSON: Well, I am not familiar with the trail situation.

MR. LAKE: Everybody in our states are familiar with it.

MS. JOHNSON: Well, I'm not. Here is an exception. I am familiar with the situation that they had in the Grand Canyon, where the Park Service wanted to remove, by killing, some of the wild burros that are in there, in the Canyon, because of its impacts. They had not

done an impact statement, because they evidently had predetermined that the removal of the burros would be environmentally beneficial, and they were not aware that the National Environmental Policy Act first states that you include all kinds, and secondly, that you don't come to any conclusions until after you have analyzed it. And several of the environmental groups that were involved or working in that area, did put pressure on the Park Service to do an impact statement.

MR. EDWARDS: I believe I saw a hand up over here. We will have time for one more question.

VOICE FROM AUDIENCE: I am with Coastal States Energy Company, and just a comment, an observation, I very much appreciate, Ms. Johnson, your desire for rapport and dialogue among all those concerned, and I am very much in favor of that. Within that context, I guess I am a little stunned by your referral to issues that coal companies on the one hand, versus environmental groups and other public interest groups, because we in the coal industry feel we are part of the public, and that we are actually working in the public interest, too.

MS JOHNSON: My intention throughout my speech -- I think that is well-taken -- was that public included everyone. At various times I listed who that might be, and at other times I just used the word "public", but I will

keep that in mind. Thank you.

MR. EDWARDS: Thank you, Carolyn. We appreciate it, very much.

MS. JOHNSON: Thank you.

(Applause.)

MR. EDWARDS: Our next speaker is Doctor Gerald W. Thomas. Doctor Thomas graduated from the University of Idaho in 1941, and obtained a Master of Science Degree from Texas A&M in 1951, and also earned his Doctor of Philosophy Degree from Texas A&M in 1954. Doctor Thomas' subject is on Energy and Food Production and I am sure it will be very interesting. Doctor Thomas.

(Applause.)

DOCTOR THOMAS: Well, speaking of environment, it is a little tough to be last on the program. Why don't you just stand up and stretch while we get ready for this presentation. Incidentally, a copy of my presentation is available at the registration desk.

O.K. Neither the United States, nor the world community has fully faced up to the implications of the energy crisis as it affects the agricultural industry. It is becoming more and more apparent that, for the near term at least -- that is, in the next ten (10) to fifteen (15) years, the availability and cost of energy will be the most critical factor limiting world food production and delivery

systems. Now, even in the less developed countries, the LDC's, where agriculture is less energy intensive, the supply of fertilizers and petrochemicals, the food delivery systems and the dependence on mechanization, though limited, are critical to agricultural development. The design of appropriate technologies for the agricultural sector, based upon energy constraints, is now one of the most popular topics for discussion in international agricultural circles. Thus, it is important that we analyze the various relationships between energy and agriculture and that we explore the possibilities for new research and developments in the energy field.

My interest in energy goes back about fifteen (15) years when I made a rough calculation that we were spending approximately ten thousand calories of fossil fuel to place three thousand calories of food on the table for the average American consumer. Many studies have since been made to refine this estimate. All studies still point to the fact that the gigantic food and fiber complex, from the supply sector through the production sector, to the processing, storage and distribution sector -- then to the point of delivery to the consumer -- this gigantic industry remains the largest single industrial user of energy in America. Present estimates indicate that agriculture, using this broad definition, may require eighteen (18%) to

twenty-two (22%) per cent of the total U.S. energy supply. Sixteen point five (16.5%) per cent of this going to the food sector, and if we add forest and fiber products, this accounts for twenty-two (22%) per cent, not the fifteen (15%) per cent, as indicated in the program.

Now, if we might have those lights, we'll go to the slide presentation.

We are all searching for the pot of gold at the end of the energy rainbow. It has been estimated that by 1985, every other meal will be consumed outside the home. This trend, combined with the continued movement toward bite-sized packaging, extra processing, and built-in maid services, means that the energy use in the food sector will continue to rise.

Through the use of relatively economical energy supplies, combined with other improvementsin technology, the American consumer has had substantial benefits in quantity, quality and the costs of food and fiber. For example, average expenditures for food in the United States have dropped from forty (40%) per cent of annual income in 1900 to twenty-six (26%) per cent of annual income in 1947, and to only about sixteen (16%) to seventeen (17%) per cent of the annual income in 1977. In contrast, peoples of many countries of the world spend thirty (30%) or forty (40%) or fifty (50%) per cent of their income for food. As

energy prices increase, the cost of food to the consumer will inevitably rise. Furthermore, a severe energy crisis, or even a seasonal limitation of petroleum products, may lead to actual food shortages both in this country and abroad.

American agriculture offers the best hope for the U.S. through the sale of agricultural products abroad to partially offset the international trade deficit. Overseas agricultural sales will help in the anticipated foreign oil purchases now needed to sustain the American economy. U.S. agricultural exports in 1977 are projected to reach about twenty-five billion ($25,000,000,000.00) dollars. Japan is still the largest importer of American agricultural products, followed by West Germany and the Netherlands. Even though grain production is up in the USSR, the Soviets may need as much as ten (10) to fifteen (15) million metric tons of grain again this next year. At the present time, only eight (8) countries in the world have significant food export capabilities.

The output of one acre out of every four -- every three and a half (3 1/2) actually, harvested in the United States, now goes into the export market. Wheat and rice are now our leading export crops. The U.S. is still competitive on the international front in the sale of agricultural products, even though this country has

experienced lost foreign markets in many areas of manufactured goods and services.

The role of energy in the world's food and fiber ecosystems can be analyzed by examining two major energy flow patterns.

First, the capture of solar energy by vegetation through the process of photosynthesis, the movement of this energy through ecosystems, and the ultimate utilization of a small fraction of this photosynthetic energy by man as a good and fiber product.

Secondly, the flow of cultural energy -- and that term "cultural energy" I am using for the standard definition of energy -- fossil fuels, and so on, the flow of cultural energy required to run this food and fiber system, must also be analyzed. The latter source of energy includes manpower, horsepower, hydroelectric power, large amounts of fossil fuels, and certain other energy subsidies.

Understanding the complicated interrelationships between these two energy flow patterns is not only important to energy conservation and efficient utilization, but indeed, may be the key to man's survival as a viable organism on the planet earth.

All life is supported either directly or indrectly by the solar energy captured primarily by vegetation in the process of photosynthesis. This chemical

reaction involving carbon dioxide, water and sunlight energy to produce food, and release oxygen and water through transpiration, is the most important chemical reaction in the world. Even the fossil fuels, coal and petroleum, resulted from over four hundred million (400,000,000) years of photosynthetic activity. One estimate states that on all of the land areas of earth, some sixteen billion (16,000,000,000) tons of carbon each year are fixed by photosynthesis. Now, how can man, then, influence this total capture capability? And, once the carbohydrates are formed, how can man influence the distribution process? These are the questions that relate directly to both the food energy cycle and the fuel energy problem.

In his primitive condition, man was merely one organism in a complex natural ecosystem. He fought for his life, collected wild plants for food, occasionally captured and ate other animals, and was beset with numerous diseases and the multiple problems of most competitive life forms. Under these conditions, the carrying capacity of the earth has been estimated as -- for man, at about ten million (10,000,000), a population smaller than that of London or Tokyo today. As man learned to harvest surplus food, domesticate animals, and cultivate crops, the carrying capacity of the land, for man, increased.

The first major increase in carrying capacity resulted from the diversion of surplus photosynthetic energy directly to man from other biological organisms. In other words, man became more competitive in the natural, but still somewhat wild environment. The next major development, in terms of increased food production, was the utilization of techniques for planting, irrigation, and crop cultivation. The third major breakthrough in carrying capacity came when man found that he could subsidize the system with fossil fuels, and thus increase the effective harvest of food and fiber.

Consequently, through the diversion of surplus photosynthetic energy, through cultivation, through fossil fuel subsidies and by other technological innovations, total food and fiber production on the earth has been increased many-fold. How many people, then, can the earth support? A Russian representative to the World Food Conference in Rome, in which I participated, stated that the world could easily now support forty (40) to fifty (50) billion people. This high estimate was shocking to most of us who have been worrying about the six (6) to seven (7) billion projected by the United Nations for the year 2000.

Whether we look at energy resources, land use, water or other requirements for food and fiber production, all nations must become more concerned about the population

growth problem. I was very disappointed with the delegates to the Rome Food Conference, who did not face the population problem squarely and forcefully. In my opinion, we must modify some of our religious, cultural, and social attitudes which encourage irresponsible population growth. How can we meet the needs of seventy-six (76) million additional people each year without some sacrifice to the resource base? India alone will require two and a half (2 1/2) million metric tons of grain. More each year, to cope with their expanding population, and Bangladesh, as one reporter stated recently, is sliding irretrievably toward mass starvation and social breakdown. Now, Bangladesh, interestingly enough, is a country about the size of the State of New Mexico. Bangladesh has seventy-five (75) people where we have one person in New Mexico, projected to double in twenty-three (23) years. What kind of lifestyle, what quality of life, what freedoms can be preserved under these conditions? Imagine New Mexico with a hundred and fifty million (150,000,000) people. Under such population pressures, little attention will likely be given to individual freedom, resource conservation, the environment or the quality of life. As a recent study by the National Research Council emphasized: "In the long run, no action is more important for improving the world food and nutrition situation than the reduction of birth rates."

Let's look first at energy flow on uncultivated lands. A complete analysis of energy flow on range and forest lands must take into consideration the capture of energy by photosynthesis, the dissipation pattern of energy flow, and the inputs of outside or cultural energy to harvest and utilize the vegetation. This figure presents a concept of energy flow on uncultivated lands. All the photosynthetic energy captured by the producer organisms -- in this case, the vegetation -- is eventually dissipated by or consumed by the animals and the organisms of decay.

The statement has been made that, on the average, about one (1%) per cent of the sunlight energy falling on the earth is captured by the vegetation. Recent studies show that one (1%) per cent is much too high for arid and semiarid areas, at least. For example, at the Pawnee grassland site in Colorado, in 1972, only three-tenths (3/10) per cent of the usable radiation was captured by vegetation growth. For the desert areas near Las Cruces, New Mexico, the efficiency of utilization of solar energy ranged from point one (.1%) per cent down to point 0 three (.03%) per cent, or three-hundredths (3/100) of one (1%) per cent. This contrasts with capture capabilities for mechanical collectors which have tested efficiencies of up to fifty (50%) to seventy (70%) per cent. Mechanical collectors such as this one on the New Mexico Department Of

Agriculture Building, capture heat only, whereas vegetation captures the energy in complex chemical form.

Once the energy is captured by the vegetation, the dissipation process begins. Respiration and growth take place and primary consumers feed on the vegetation. On range lands, the ruminant animal, both domesticated and wild, through its ability to convert roughage to edible meat, is the primary means of making productive use of these areas. But, here again, some interesting results are being developed by the IBP studies that change, rather substantially, some of the old assumptions. For example, termites, in both the desert and grassland biomes appear to be far more important in vegetation harvest than one might assume. Termites are common in New Mexico, but more obvious from this picture of termite mounds, from Angola, Africa, in Southern New Mexico, termites consume ten (10) times more biomass on the desert than livestock. In addition to termites, there are large amounts of energy diverted to other forms of insects and microorganisms at all stages in the food chain.

These range caterpillars are consuming nearly all of the grass as they move across the range. Further reductions in energy are illustrated by this chart, which presents the concept of energy partitioning and disposition by ruminant animals. Doctor Cook, in Utah, reported that

ranchers could sell, on the average, in a good cow-calf operation, about ten (10%) per cent of the energy consumed by the animal. A study in California showed that one one thousandth (1/1000) of the radiant energy falling on an area was available to cattle, and only one forty thousandth (1/40,000) of the original energy reached the food product, meat.

The fossil fuel input, or cultural energy requirements for livestock production on rangelands is relatively small because there is little energy required for supplies and production. Mechanized equipment on the ranch consists primarily of motor vehicles, tractors or aircraft used for brush control, mechanical equipment for stock pond construction, and so on. Yet, it still costs lots of energy to grow that calf or lamb for market. One estimate indicates that cattle ranches in the Southwest used approximately four (4) gallons of gasoline and six point two (6.2) kilowatt hours of electricity to produce one hundred (100) pounds of beef on the hoof. Certainly, the cultural energy requirements from fossil fuels to produce cattle and sheep may be low on the range, but the net energy analysis is incomplete without a consideration of the feeding, processing and delivery systems.

It should be emphasized also that the range livestock industry, particularly in the western United States,

is very dependent upon cultivated lands for supplemental feeds. Economically, as well as ecologically, harvest of food, for most range lands, exists in a delicate, fragile relationship with small areas of intensive agriculture. Factors which affect crop production, such as the price of natural gas for irrigation of alfalfa, can easily cripple or even destroy the range livestock industry. More data are urgently needed in order to properly evaluate these interrelationships, particularly as they relate to cultural energy requirements.

A significant breakthrough in the efficiency of sunlight energy diversion to man was made when crop cultivation was developed. Man could now select and develop crop plants for his specific needs and concentrate cultural practices on maximum production. Under some modern intensive cultivation systems, the efficiency of sunlight energy capture has exceeded three (3%) per cent, while the theoretical efficiencies of conversion have been calculated at five point three (5.3%) per cent for total energy, and twelve (12%) per cent for visible light radiant energy.

An examination of energy flow patterns on cultivated lands reveal some interesting historical trends. In some of the developing countries of the world, about thirty (30%) to forty (40%) per cent of the energy input

to run the system comes from manpower or oxenpower. Even in the United States, in the early 1900's, there were about twenty-seven million (27,000,000) horses and mules on the farms and ranches. Through the years, farmers and ranchers in the United States have steadily mechanized, and have substituted more than five million (5,000,000) tractors and many other forms of power equipment for about twenty-two million (22,000,000) of these horses and mules. Now, as a measure of progress, we have released about eighty-one million (81,000,000) acres of land that would have been required to feed the twenty-two million (22,000,000) horses and mules, and that land now may be used for direct food production for humans, and in addition, we have increased efficiency and output per acre. Years ago, the man with a good team of horses would plow about two (2) acres a day. Today, mechanized power makes it possible for him to plow over one hundred (100) times that much.

However, as a result of the increase in mechanization on croplands in the United States, and abroad, energy flow patterns have been significantly changed. Horsepower, mulepower, oxenpower, and manpower operate on the solar energy collected by vegetation, a continuing resource for all practical purposes. Tractors and machinery utilize fossil fuels, a finite and depletable resource.

The trend toward mechanization on farms is not

confined to this country. In 1950, FAO estimated that there were about six point one million 6.1,000,000) tractors in the world. By 1970, this number had exceeded fifteen point five million (15.5,000,000) and is still going up.

In view of the world-wide energy shortage, it appears logical to slow down the trend toward mechanization in agriculture, particularly in the less-developed countries. Also, most of these LDC's have an abundance of cheap labor. Therefore, this train is operated by wood, fueled by wood, they are breaking rocks to prepare the roadbed for transportation. Also, most of the LDC's are looking at a new term, and we will see this term in all of the international literature, called "appropriate technology". This term implies that the rest of the world need not adopt the high level of mechnization used in the United States, but rather should develop labor intensive methods. This sounds good in theory, but as a recent National Research Council Report states: "There are no panaceas or quick remedies for the problems of development to be found in the choice of particular types of intermediate technologies."

This NRC Report points to the need for additional research related to energy saving approaches for the developing countries. Meanwhile, in the United States, it will be difficult, if not impossible, to move back toward

more labor intensive techniques. For example, one recent study pointed out that at the present costs, and even with some substantial escalation in the costs of energy, in order to substitute labor for fossil fuel, the human labor must be valued at nearly zero (0). Further, Hill and Erickson of the University of Illinois comment on the market system as follows; and I think this is an excellent statement: "As a basic philosophy, the market system has allowed consumers to choose between beer and coke, chicken and pork, and cake mixes and 'bake-it-from-scratch'. Recommendations that agriculture shift from products with a high ratio of energy input per calorie to products with low energy input, either visualizes a new social order in which consumer preferences are legislated or incorrectly assumes that consumer preferences do not influence the allocation of resources into their highest value use."

The energy crisis also rather shockingly focused the world's attention on fertilizer and other petrochemicals needed for food and fiber production. Since the bulk of our nitrogen fertilizer comes from natural gas, both shortages and increased costs have created problems world-wide. Nitrogen fertilizer is now the largest single energy input in crop production. The genetic potential of the new crops developed as a part of the Green Revolution cannot be realized without optimum inputs of

fertilizer and water. It has been estimated that the fertilizer shortage in 1973 in India alone reduced grain production by ten (10) million metric tons, despite good weather. World fertilizer use increased from fifteen point two (15.2) million metric tons in 1950 to over seventy (70) million metric tons last year.

At the World Food Conference in Rome, it was called to the attention of the OPEC countries that they are annually flaring enough natural gas to supply the present world's nitrogen needs. Add to this the total waste, by flaring, of other oil producing countries and the total exceeds four point five (4.5) trillion cubic feet of natural gas. This waste can no longer be tolerated. During my recent trip to Saudi Arabia, I was pleased to learn that ARAMCO -- which, incidentally was being transferred to total Saudi ownership -- has plans to capture and utilize nearly all of their flared gas wastes within the next four (4) to five (5) year period.

This chart presents a schematic diagram of energy flow for cultivated ecosystems. Although solar energy capture takes place only at the farm level, fossil fuel energy subsidies are required throughout the system. Energy is consumed in the preparation of agricultural chemicals, fertilizers, farm machinery, seed and other supplies. Energy is also consumed in the process of

planting, cultivation and harvesting, and large amounts of energy are consumed in processing, storage, packaging and transportation, before the finished product reaches the consumer level.

In the United States, one estimate indicates that over ten thousand (10,000) calories of fuel are required to help capture three thousand (3,000) calories of food and place it before the consumer. Other estimates of fossil fuel subsidy range up to ten (10) or more calories of fossil fuel for each calorie placed on the table. Even in rural India, and Africa, about twice as much fuel energy is used in cooking a unit of rice as there is in food energy in the rice.

One of the difficulties in arriving at accurate statistics on agriculture and energy relates the definition of agriculture. This accounts in part for the variability in estimates. However, for the "production" or "on-farm" sector, we do have some fairly good studies which show that in the relatively primitive rice cultures of the Philippines or Africa, about sixteen (16) calories of digestible energy, food, resulted from each calorie of cultural energy input. In this case, the cultural energy was hand labor. As mechanization has developed, the ratio of cultural energy input to digestible energy output has increased and thus, the net caloric gain has decreased.

Energy inputs for crop production in the United States tripled from 1945 to 1970. An estimated seven hundred and forty-two liters (742) of fossil fuel equivalents currently are utilized to raise a hectare of corn. Now, for crop production to feed a world population of four (4) billion employing modern intensive agricultural techniques, would require the equivalent of seventeen hundred (1700) billion liters of fuel annually. And if you add the off-farm sector to this, this raisès the estimate to six thousand (6,000) billion liters. Certainly the United States, using more agricultural practices, could not produce enough food to feed a world population of seven (7) billion with current energy limitations, even if capital were unlimited.

Limited studies have also been made of energy flow patterns for cotton and other fibers. This table presents a comparison of energy largely fossil fuel required for cotton and cellulosic and noncellulosic fiber production.

To produce and process a pound of cotton as a finished broadwoven fabric requires about fourteen thousand six hundred and twenty (14,620) kilocalories. Energy consumption for the synthetic fibers is more than double this amount. Wool places the lowest demand on fossil fuel. The raw materials for the noncellulosic fibers are petro-

chemicals derived from petroleum and natural gas.

From an ecological viewpoint, the natural fibers, cotton, wool and mohair, have an advantage in that they place less pressure on the energy resource base than synthetic and highly processed fibers. In spite of these ecological considerations, synthetic fibers have been capturing an increasing share of the fiber market. Each person in the United States is now consuming over twenty (20) pounds of synthetic fiber per year, related directly back to fossil fuel. Just prior to the energy crunch, the Resources For The Future predicted that synthetic fibers would capture over fifty-four (54%) per cent of the fiber market by the year 2000. In my opinion, these projections will not materialize because of the pressure on petroleum products. Japan and Western Europe major processors of clothing and textiles, are already placing more emphasis on natural fibers.

In the discussion of range ecosystems, it was mentioned that the energy flow patterns for range livestock production were tied to cultivated lands. A rather sophisticated diagram of this relationship between cotton production and beef production is shown here, similar diagrams could be used to show energy flow patterns for other fibers, both natural and synthetic. It is important to identify these interrelationships as we conduct net energy

analyses.

Special mention should be made of the importance of irrigated agriculture and the concerns of this sector about national energy policies. Water is the most limiting factor in photosynthesis. Irrigation farmers, particularly in the West, are watching the progress of energy legislation with alarm. For example, recent decisions by the Federal Power Commission concerning natural gas priorities could drastically alter the cost of pumping irrigation water. In turn, this will alter cropping patterns so that feed grains may become scarce, and certain vegetables may no longer be produced for certain periods of the year during which they are now available.

While land irrigated with pumped water represents only about ten (10%) per cent of the harvested acreage in the U.S., this land accounts for over twenty-five (25%) per cent of the total farm sales. In the fifty (50) states we now have over forty million (40,000,000) acres under irrigation. With the advent of the rather sophisticated center-pivot sprinkler systems, such as shown here, irrigation has moved rapidly into the Mid-West, with Nebraska now being the third most-irrigated state, with over twenty thousand (20,000) of these center-pivot systems. There seems to be no question that sprinkler irrigation systems increase the efficiency of water use. However, the

energy cost of the center-pivot system alone is the equivalent of adding over two hundred (200) feet to the depth of the well, which may double the fuel requirements.

New Mexico State University, in recent studies conducted by George Abernathy, pointed out that farm irrigation pumps in our state have tested efficiency ratings from about fifty-six (56%) per cent down to twenty (20%) per cent with plenty of opportunity for improvement on most farms. We should be able to get up around sixty (60%) or seventy (70%) at least. In any event, natural gas curtailment or price increases would have serious direct impacts in many states, and especially in Texas, California, Wyoming, and New Mexico. Energy costs have already forced some farmers to return to dryland production in several western states, and profit margins are slim to non-existent on many other irrigated enterprises.

Now, a few comments about biomass conversion and fuel farming. As the price of petroleum increases, the argument over whether to go the food route or the fuel route for the utilization of plant biomass and organic waste is becoming hotter. Studies are now underway to examine tropical forests and brush lands for their fuel production potential. Also, certain cultivated crops under intensive management can be used for the production of an end product that may be competitive as a fuel or as a source

of methane, ethanol or other alcohols to power mechanized equipment.

Harvesting of forests and woodlands for fuel is certainly not a new concept. Historically, some of the earlier energy crises resulting sometimes in mass migrations of people were associated with over-utilization of brush and trees or other organic materials. Here, manure is dried for fuel, as cow chips, in Greece. What is new in terms of fuel farming is the re-examination of the sustained-yield concept particularly for wood and brush and organic material energy production, and new techniques for concentrating and packaging, including possible refinement to alcohol.

The United States produces about two billion (2,000,000,000) tons of solid organic wastes which could be utilized. Estimates of the readily collectable organic wastes in the United States amount to the equivalent of one hundred and seventy million (170,000,000) metric tons -- excuse me -- one hundred and seventy million (170,000,000) barrels of oil. While this represents only about three (3%) per cent of the 1977 oil consumption, the potential is much greater. One authority reported that the United States sewage alone could yield two billion (2,000,000,000) cubic meters of methane per year, and that India's brightest hope for bringing commercial energy to

most of its six hundred thousand (600,000) villages is pinned to a device that produces methane from excrement, leaving a residue suitable for use as fertilizer.

Doctor Stanley Smith, on our staff at New Mexico State University is working on a joint project with Sandia Laboratories here in Albuquerque to utilize the sewage from New Mexico's largest metropolitan area -- Albuquerque -- in this case for livestock feed rather than fuel production -- although we are looking at methane as one of the potential products of this conversion process. One feature of this research is that we have found a good use of a radioactive waste to sterilize the sewage material. Results to date suggest that solids from undigested domestic sewages could be worth upwards of one hundred dollars ($100.00) per ton under current economic conditions when used as supplements for cattle and sheep rations, and used in the fuel cycle, however, the value is not nearly so high.

Now, interestingly enough, when I was at Texas Tech, we conducted research, feeding livestock the most expensive ration that has ever been fed in the world -- Classified Documents from the Atomic Energy Commission. And we found that we could substitute these Classified Documents, pound-for-pound for alfalfa hay, in certain kinds of rations, so we branched out to feed the Amarillo Globe

News, and I suppose it was the editorial page, but in any case we didn't get near the performance from the Amarillo Globe News.

(Laughter.)

Now, other studies have been made on feeding and utilization of paper, and tests of both the Washington Post and the Manchester Guardian show that they have more ligament in their publication than Playboy Magazine, but Playboy had a very high ash content.

(Laughter.)

Now, the concept of "energy farms" has stimulated new enthusiasm over possible new crops, farm practices and bioconversion techniques. Agricultural scientists are particularly interested in alfalfa, sugar cane and some of the cereal grains. Some people are projecting yields in excess of two hundred (200) tons per acre per year by maximizing photosynthesis. New plants are also coming under examination, particularly the Euphorbia species. Nobel laureate Melvin Calvin has estimated that such plants might produce the equivalent of twenty (20) to one hundred and twenty-five (125) barrels of oil per hectare, per year, at a cost of about ten ($10.00) dollars or less per barrel. Now, our own research, in cooperation with the Los Alamos Scientific Lab, points to good possibilities for algae production, in a water bath, and bioconversion utilizing

some new micro-organisms discovered in New Mexico by the late Doctor Eugene Staffeldt. And he found some micro-organisms for anarobic digestion which have a conversion capabilities four (4) to ten (10) times anything that has been reported in the literature. And Doctor Staffeldt stated before his untimely death in August that if he could transpose his laboratory experiments to the field, he could produce all of the U.S. energy needs by growing algae in a lake in New Mexico which measures forty (40) by two hundred (200) miles, or eight thousand (8,000) square miles, and subjecting this plant material to anerobic digestion to produce ethanol or methane. Of course, water, in New Mexico, is too scarce for that.

Incidentally, the solar energy incident on U.S. croplands varies from a high of 260 watts per meter squared per year in most of New Mexico, Arizona and parts of California to a low of about 150 watts per square meter per year, in the very regions of upstate New York, Vermont and Oregon. We are in an ideal setting for capitalizing on photosynthetic energy use. In a recent article in Science, James Bassham of the University of California proposed a system of fuel farming for the U.S. Southwest using huge greenhouses with a carbon-dioxide enriched atmosphere, and remember carbon-dioxide in that process of photosynthesis -- one of the limiting factors. Now, leaving

aside certain economic, engineering and physiological conditions, he estimates production of two hundred (200) metric tons of alfalfa per hectare with a five (5%) per cent efficiency of solar conversion.

Now, before we get our hopes too high on the possibilities of fuel farming, I think it should be pointed out that most of the economic studies to date have shown that food farming is more economically sound than fuel farming. In other words, unless energy prices rise much more than at present, the best uses for our cultivated lands and most of our organic wastes, is in the food system. And, as the population increases, world food shortages may be more critical than energy supplies, shifting the emphasis on cropping systems back to food supplies.

Now, a bit about conservation of energy. Despite the concern over the energy crisis, too little attention has been given to the possibilities for energy conservation and increased efficiency of use in the agricultural sector. This is a windmill that we developed at New Mexico State University. More specific research is needed to determine ways and means to increase photosynthetic energy capture, to increase the efficiency of use of fossil fuels, and to examine and improve energy flow patterns.

We also need to look at alternative sources of

energy. This is the solar energy project. It is an on-going effort between ERDA and Sandia, and New Mexico State University, and this system will pay off in the very near future, if we can find a year-round use of the energy that we are producing by the system.

Research directed toward increased crop production has had the indirect effect of increasing solar energy capture. However, I believe that our effective energy capture by photosynthesis could be moved above the three (3%) per cent level by plant breeding and selection to increase leaf area and arrangement, genetic engineering to increase chlorophyll, more research on the process of photosynthesis, studies of artificial increases in carbon dioxide supply, and modification of other environmental factors with special attention to energy. The tremendous losses of energy by insects, diseases, rodents and wasteful practices could produce substantial savings in food and fiber energy at the consumer level. India, for example, loses forty (40%) per cent of their food between the farmer and the consumer.

Now, we had the answer with fuel farming, and perhaps with the energy crisis, in New Mexico. All of you know about the heat produced in Chile. Now, I am sure that the capture capability through the process of photosynthesis must be in excess of three (3%) per cent, and if

we can get our engineers to transfer that heat energy into electricity, we'll have it made.

(Laughter.)

Now, if I might have the lights, please.

A word of caution must be inserted as a closing note. Now, a man could undoubtedly tap photosynthetic energy for food and fiber products, or for fuel, there remains a serious concern over the environmental consequences of such major manipulations of natural ecosystems. Man lives in a delicate natural balance with other organisms and the physical factors of the environment. As more people are added to the population base, as the developing nations adopt modern technology, as man continues to deplete nonrenewable resources, we move closer and closer to the ultimate limits of the environment. No one yet knows where those limits lie, but it is our responsibility, as we examine energy alternatives, to be conscious of the fact that decisions made today may be critical to all future generations of mankind. We must find ways and means to sustain our total food and fiber complex on renewable rather than depletable resources. It is, indeed, later than we think, sooner than we thought.

(Applause.)

MR. EDWARDS: Thank you, Doctor Thomas. I wonder if we could have the house lights back on, and are

there any questions for Doctor Thomas? All right. Please come to the microphone.

VOICE FROM AUDIENCE. I am with the United States Geological Survey. Doctor, do you have any projection -- a hypothetical case that all energy was cut off and then we had to go back and hook it up to the horse, how many people could we feed?

DOCTOR THOMAS: No, but it would be substantially less than we are feeding at the present time, because we are assuming, in the United States, responsibility for many -- feeding many of the world's people, as you know, and we are subsidizing them with either food aid, or foreign currency sales, and the public law sector, and so on. So we would be in very serious trouble if we moved back toward even more labor intensive techniques for the utilization of horses and mules. I don't think we have any choice. I think we have to go ahead, our priority should be to find other sources of cheap, plentiful energy, because we have got to place that food on the table. The challenge is before us to do that. There will be about seven billion (7,000,000,000) people by the year 2000.

MR. EDWARDS: Carolyn?

MS. JOHNSON: Yes. Doctor Thomas, you spoke about appropriate or intermediate technology, particularly

in the undeveloped countries, lately there has been a lot of discussion about the moral implications of the United States advocating intermediate or appropriate technology to a lesser level than immediate, lesser mechanization to other countries, but not adopting it here -- it's quibbling -- I wonder if you would like to comment on that?

DOCTOR THOMAS: Well, I am in favor of -- where labor is cheap, and it is in most of these countries -- remember there are forty (40) countries of the world where the per capita income is less than a hundred and fifty ($150.00) dollars per year. Now, for those countries, labor has to be cheap, and where they can, they should utilize labor, but as they develop, they will move more and more toward mechanization. I think the handwriting is on the wall. Now, we will have to find another source of energy, because we are talking about -- even with coal, you know, everyone here has been talking about 8, or 10, or 50, or 100 years -- when you think about eight hundred (800), or a thousand (1,000) or two thousand (2,000) years, it is obvious that we have to find a source of renewable energy. I am convinced that we can, and will eventually solve the energy problem, but the thing that worries me in the food and fiber sector as I have traveled around the world, is that water will become the most critical

source in determining how many people the earth can feed. So I would say, wherever possible, maintain the labor intensive techniques, but I don't think it's possible for us to go backwards.

MR. EDWARDS: Are there any other questions? One right here.

MR. GEEHAN: Pat Geehan, again. I don't quite get the logic of this appropriate technology thing. If you look back at the history of the United States, the reason we get to the standard of living we have now is because of the increases in technology and the use of the land, and better labor productivity. What you are advocating for the less developed countries is to say stay down in the hole because you have got all kinds of energy. When it comes to labor, the logic there somehow doesn't track.

DOCTOR THOMAS: Well, that's a very good point. I am on the Board For International Food And Agricultural Development, and I have acted on the Foreign Assistance Act and I meet monthly in Washington, D.C. with AID, with the Administrator and top levels of Administration, and there are two (2) mandates which gives force in the international scene. Force on U.S. technical assistance to be shaped toward the so-called appropriate technology. One of these is a mandate to reach the poor masses and the

small farmer, which is a Congressional mandate. The second is that President Carter's emphasis on Human Rights, and there is a term now moving into international literature -- the buzz word is BHN, Basic Human Needs. Now, it seems rather ridiculous that we would promote efficiency and economy in all other sectors except the agricultural sector. This is what shocked me about the Secretary of The Interior's stand on the hundred and sixty (160) acre limitation. It does not make sense. It means that -- while we let the rest of the industry go ahead and try to economize and move toward efficiency, we are restricting the agricultural sector, and forcing many people to seek off-farm employment, because a hundred and sixty (160) acres of irrigated land, unless you have a very intense crop, will not sustain the average family, so you are forcing them to other sources of income.

Now, for us to move back or to restrict acreage, or to do these kinds of things, would say in effect that agriculture shouldn't benefit from technology, but the rest of society should. I think that also applies to the international scene. Needless to say, we are frustrated by that mandate from Congress, and there is much debate among the university communities about how to carry out this mandate.

MR. GEEHAN: Thank you.

MR. EDWARDS: Any other questions?

(No response.)

All right, thank you, very much, Doctor Thomas.

(Applause.)

MR. EDWARDS: That concludes our program for today. I had just better check and make sure that I have got the right time -- yes, we begin again tomorrow morning at nine (9:00) a.m. Thank you for your attendance.

(Whereupon, the Conference was recessed for the day, to reconvene at the hour of nine o'clock, a.m., on the following day.)

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BUREAU OF LAND MANAGEMENT

SOUTHWEST ENERGY MINERALS CONFERENCE

THEME:

"CHANGING TIMES"

KIVA AUDITORIUM
ALBUQUERQUE CONVENTION CENTER
ALBUQUERQUE, NEW MEXICO

November 2 & 3, 1977
9:00 o'clock A.M.

Conference Chairman: GEORGE NEILSEN
Bureau of Land Management
Denver, Colorado

Co-Chairman: FRANK A. EDWARDS
Bureau of Land Management
Washington, D.C.

VOLUME II

P R O C E E D I N G S

MR. EDWARDS: To start off this morning, our first speaker will deal with the problems of uncertainty, and that obviously is a big problem as far as the mineral industry is concerned.

Edward L. Vickers is Vice President of the Bank of America, Head of the Project Financing Group in San Francisco, California. Mr. Vickers served as Vice President of Exploration and Mining for Kaiser Aluminum and Chemical Company from 1967 to 1972, and was President of Texada Mines, and a Director of Placer Exploration, Limited, until assuming his current position. He is a member of the Canadian Institute of Mining and Metalurgy, and Chairman of the San Francisco Section of the Mining and Metalurgical Society of America. Mr. Vickers received a Bachelor of Science Degree from Missouri School of Mines in 1952, Master of Science Degree in 1957, and Engineer of Mines in 1958 from Columbia University.

I think you can see from that background that Mr. Vickers is very well qualified to speak on this subject to us this morning. I present to you now, Mr. Edward L. Vickers.

(Applause.)

MR. VICKERS: Thank you, very much. Good morning,

ladies and gentlemen. The theme of the conference here today is "Changing Times". I would like to discuss with you how some of these changes are affecting the mobilization of capital for the development of some of our resource and energy projects. As one looks over the program, he is indeed struck by the emphasis that's placed on the uncertainties facing us. It is in these uncertain and changing times that we come face to face with really kind of a startling anomaly. Never before has energy been such a strategic political and economically valuable commodity, yet, at the same time, both equity and funds and bank financing are becoming more and more difficult as institutions and banks try to come to grips with some of this changing scenario.

Naturally, we are not asking for total certainty. There is always risk associated with the search for and the development of resource projects. It has been the gambling spirit that has brought most of these about, but it has been an environment in which the investor can have the expectation of a reasonable return of his investment.

I would like to focus my comments here today on how the banking industry, particularly in the financing of mineral ventures, analyzes a project, and some of the techniques they attempt to employ in bringing some of these about. Before embarking on some of these techniques,

however, I think it would be worthwhile if we might recount a little history, some of the changes that have taken place that are going on currently that have given rise to the development of some of the approaches that are being employed today.

Resource companies up through certainly even as late as 1960 were financed largely from their internal-generated funds, and to some extent, by equity financing. But why is this no longer possible? I think a number of factors can be blamed on this: some come up unexpectedly as in the case of the quadruple in the oil price, but others have their roots in more subtle, but nevertheless real issues. These are such things as mining productivity, raw material shortages, Government regulations and economic dislocation. But one thing is certain, probably no factor has had more to do with this than persistent inflation. It is nominal and real growth, both must be financed. Persistent inflation has resulted in a substantial, unproductive debt burden that must be carried. It is not difficult to see how inflation has really affected us when we think back by about 1960, an integrated copper complex cost about twenty-five hundred ($2,500.00) dollars per ton of annual capacity. Today, that is over seven thousand ($7,000.00) dollars. Inflation has further contributed to the rapid deterioration of the credit-worthiness of many

elements of our industrial sector. We see this right in the energy sector, with the deterioration of the credit-worthiness of the utility companies.

Now, mining companies have certainly faced this. The industry grew up financing itself largely out of cash flow and out of equity, and this persisted for many, many years, and in fact, even as late as 1960, the mineral industry had very, very little debt on its books. This had increased by 1970, however, to the point that the debt equity ratios were in the range of about twenty (20%) per cent. Today, that is in excess of thirty (30%) per cent. I think the mining industry, resource industry and the financing community alike feel that this is rapidly approaching about the maximum that a company should prudently carry.

While capital and operating costs have been pushing upward by the forces of inflation, profits, of course, have tended to not behave quite as nicely. They have, in many of the resource areas, been flat, and in many instances, even declined in terms of real terms. The volatile and often fluctuating nature of commodity prices have exacerbated this cash flow problem, so that there has been an eroding away of the borrowing strengths of the companies in the resource industry.

Well, faced with excalating investment costs

and new production facilities, widespread use of joint ventures has developed. There has been an attempt to try to share some of these risks, to increase the borrowing capacity of the companies involved in a project. And this has brought together not only mining companies and the resource companies, but also the users, so that we have developed a rather unusual group of marriages in the resource companies. So this has all complicated the ownership structure. In the international arena, this has even gotten more complex, as the rising nationalistic objectives of the developing countries has required more and more involvement on their part in resource development, such as local ownership, both private and Government is involved. Again, complicating the ownership picture, and making it all the more difficult to find out where you could build a credit strength for the development of these projects.

To cope with this increasingly complex problem, many of the resource projects today are being financed or are attempted to be financed largely on the basis of the venture itself, where we are looking to the future of the venture rather than the cash flow of the companies that are supporting it. This has developed into what we call project financing. I want to focus on that today, but I am not going to ignore the balance sheets as they come into

play in the various types of energy financing.

This activity has got many definitions -- about as many people that are involved in it have as many definitions for it, but basically, it is cash flow financing, future cash flow financing, in which the banks, the financial institutions are prepared to rely largely on the cash flow generated from the development of these projects as a source of their repayments rather than from the overall corporate strengths of the corporations supporting them. Now, the support of the parent corporations and those organizations that are involved are certainly not to be ignored, but basically, we are looking into the future. To the cash flow generating capabilities of these ventures.

Now, this offers some solution to some of the problems that I have just talked about, and I will try to lead you through how we look at them, at least, but it is not a panacea for it, I don't want to indicate here that wild expectations as to the future of particular ventures is going to make them financable, that the -- that it is not a panacea for financing something that isn't intrinsically very strong.

I think we might try to look at how the banker evaluates these projects, and tries to come to grips with how good this project is, and how he would attempt to put

it together. The process is really a two-step activity. The first is to try to determine from his perspective, is the project, in fact, economically viable. Given the fact that this is the case, he can then focus his attention on how this might be structured.

Well, let's begin with the first of these steps: that is, to determine if the project is viable. Now, this involves, again, kind of a two-part analysis. Part of these uncertainties are technical in nature, and the other are political. We are focusing, unfortunately, very heavily on uncertainties today, but it is these uncertainties that banks have to deal with, and it is the resolution of those in one manner or another that will give rise to a viable financing. The technicological uncertainties, I think we have a capacity to come to grips with. We are better able to understand what goes on in a process so that we can quantify those. The political ones remain a little more elusive, but nevertheless, they must also be coped with.

Now, in evaluating these, we are basically trying to quantify them, to evaluate -- put numbers on them. Evaluating risk by the owners and lenders is not all that unalike. They are both looking at the same thing, trying to define what the future holds for them, but what are the degrees of risk? Now, we are looking at trying to finance

these ventures on the basis of expected cash flow. We are trying, really, at the onset in analyzing this, of course, to determine how reliable these cash flow expectations are.

In resource development, clearly the first step in this is the raw material. We certainly want to know that it is there in the volume, with the physical characteristics that we expect, and they can be mined. But I think if we have applied our technology adequately, the risk area here probably can be molded into a form that the banks can accept. Now, they may require additional studies beyond what the sponsors of the project deem desirable or essential, but nevertheless, these are kinds of things you can get a handle on. The other considerations, however, remain a bit ominous. The most critical, of course, of these political risks, are environmental in nature. Can the deposit be mined in such a way as to be acceptable from an environmental point of view? This presumes, of course, that the environmental criteria can in fact be established, and that the processing plant can then be designed to satisfy these criteria.

The financing institutions, I think, today, are perhaps focusing much more of their attention on these kinds of uncertainties rather than the geology; changes in vague regulations on both the State and Federal level are indeed worrisome. They are worrisome to us, just as

they are to the resource companies. Environmental impact studies are expected to provide satisfactory answers. But, unfortunately, they are completed and yet some lingering doubts remain. Financing agents are required, then -- and I want to focus on this theme throughout -- that as these uncertainties cannot be quantified, that, as unknowns in the future exist, either real or unreal, the financing institutions cannot cope with them. They are going to have to lay that financial responsibility off to the sponsors, or some of those that are receiving benefits. So it is imperative to try to get those identified as clearly as possible, so that we are not fighting straw men all the time here.

Now, just an example of one of the environmental problems: our bank worked with the sponsors of the Kaiparowitz Project for some considerable time, and it's false starts like this that certainly have spread a degree of fear in many of the financing institutions. Not that we were financially injured in that particular situation, we did spend a bit of time on it, but, in the development of the kinds of problems that focused in this project, it made the financing institutions even more acutely aware of how some of these environmental considerations may ultimately erode away what is otherwise a project that can, in fact, stop a project, if this project developed a little

bit further, certainly considerable kinds of financing could have been put in jeopardy, so this has sort of spread a fear through the financing institutions, and they are going to, one way or another, not put themselves in the position to have to cope with these.

The second major area that they will place considerable emphasis on are capital cost estimating. Well, here, technology in the past has done a pretty good job for us. It was very possible to design a process and estimate capital costs that were associated with this, with a fair degree of accuracy. Well, inflation, as we all know in the last few years has really raised havoc with this process, and it becomes somewhat of a guessing game, but nevertheless, we are getting our hands on this and trying to handle it a little better, and hopefully, the rampant inflation that we have seen over the last few years has been brought into some manageable boundaries, and we can get some reasonable expectation as to what a project is going to cost, that your bankers and your engineering firms can agree on certain kinds of escalation factors that they both feel reasonably certain with.

There, however, remains a threatening factor, both in the eyes of the sponsors and the eyes of the bankers as to what is going to happen down the road if this project gets into the engineering stages, and then gets

interrupted. Delays on a project once financed can be very, very expensive, just on a small project, if you are paying ten (10%) per cent on a hundred million ($100,000,000.00) dollars over a year's delay, that certainly has added considerable, and changed the economics of that venture, so that the delays as they reflect themselves in increase costs again, are areas that are of grave concern, and must be coped with.

Now, operating costs, perhaps, are not quite as difficult, certainly not so in the area of manpower loading and some predictions as to the labor costs input. Supply problems are a little more difficult to get a handle on, particularly in areas that have a high energy input, but we will assume even here that engineering and technology can guide us through this jungle in such a way that we do have a reasonable handle on it. But, the problems of energy availability in resource project development still lingers. The banks will very often want more than assured energy supply. They may be asking for backup facilities, or standby facilities, all tending to increase the cost of a project because of the uncertainty, and not because of the intrinsic need of this for the project.

Market considerations are another one of the risk factors that are looked at. It's -- it unfortunately

seems that every project we look at today, the costs go up but the product price doesn't go up, so we have these uncertainties. Feasibility studies today certainly must go well beyond the traditional capital and operating cost estimates, and process design. They have got to include, certainly to provide for the kind of information that the financing community wants, an adequate definition of what the market looks like, and its larger contacts, and where this particular project fits in the overall competitive situation of other projects within the venture, so that if in the market, predictions are so difficult, we find ourselves relying more on what is this project's competitive action?

Well, throughout these categories, and they are by no means complete, but I think they do cover the broad areas that we are looking at from the point of view of trying to quantify -- put a handle on what these risks are, and we are going to later try to integrate those into the financing. But it is essential, to begin with, to understand what they are, and understand what they are in such a way that as bankers we are not asking sponsors to support an event that is very unlikely to happen. We can just keep loading up these supports until we are right back into the balance sheets, the full credit strengths of the sponsors. We are trying to get away from that because, as

we said to begin with, these balance sheets, in many instances, are not all that great anyway, so we would like to look more -- more to the venture. And despite all these uncertainties, some projects do emerge as at least passing this scrutiny, as looking as though they are economically viable.

Well, how might we go about structuring one of these? In that we are looking to the cash flow, looking into the future, so we have got to have a production facility, we have got to have a market, and we have got to have a linkage between these, and the whole exercise that we'll be going through at this point now, is the development of this. The nature of the production facility is important in that it determines the ability of this venture to produce an economically viable product. Feasibility studies have come forth in the analysis of this with the expected production from this, the expected characteristics of it. But this is an unknown, it is not certain at the moment, if this can be done, so that in most every kind of project today, credit -worthy sponsors have got to give rise to the existence of a production facility. Now, this can be done most often through some form of what we call a Performance and Completion Agreement. Basically, what we are asking for here is that this facility be completed, that it be put on strain, that it produce at the designed

rates or more or less in conformity with what had been expected, and gave rise to the cash flow projections. And that the sponsors have to be unconditionally on the credit, to insure that this takes place. Now, they are on there for several reasons. We have just mentioned some of them here: delays. Delays are going to cost extra money. Delays occur and extra money is required, the banks have an agreed-upon amount of financing that we believe the project can support. The cash flows have a capacity to service this kind of debt. If more money is required, that money has to go into the form of equity, because the kinds of projections will simply not permit it to be serviced in the form of debt. It also copes with the problems of overruns.

Now, this can, in part, be alleviated to some extent by the financing community sharing in some of this. If the project can take more financing, and it is not determined at the onset that it will be definitely required, it may be possible to establish an overrun facility of some sort. But basically what we are saying here is that before we get into the realm of financing on the basis of the venture itself, we want the project to be complete.

Now, we are not asking the sponsors to stay with this during this period -- the whole life of the project, but rather simply to deliver a venture that is

onstream -- well, I'm not -- my word "simply" is incorrect, here -- but to deliver a venture that is onstream, that is performing in accordance with expectations.

Well, we have one side of the equasion solved. Moving to the other side, of course, are markets. We want to assure ourselves that even if this product is produced that it will be marketed, and we have some expectation what the price of the product is going to be. Sales contracts are, of course, the answer to this. Sales contracts have advantages also, in that they bring additional parties to the venture. We are here not starting out necessarily with one single sponsor, with one single beneficiary of ventures, but as we go through this we are adding more and more entities that have benefits to be gained by this project going forward, and as we do this, we are trying to identify areas in which these entities, in return for their benefits, can convey some of their credit support to the venture. Sales contracts are probably one of the most lucrative areas in which this can be done. These take on many forms. They range from the very strong, hell-or-high-water take-or-pay agreements, through the less credit-worthy but nevertheless extremely valuable take-and-pay arrangements. In the take-or-pay arrangements we very often see these in pipeline financings, or in tolling arrangements for cost

companies. Whereas, price for the product is agreed that will, at all times, be satisfactory to service the debt, even though there are interruptions in product flow, and clearly this is a very strong credit, and if you have that in its complete form, I suppose you don't need any other credit support. You have got a guarantee of cash flow, and as a consequence, you have assured debt repayment. These are very hard to get, and so we usually have to settle for some lesser form of it, and these can take on many, many forms. They may include base floor price arrangements. They may have provisions in which portions assure because interruptions can be coped with in different ways. But here we have added another party to the game, in the sense of users, and they must be capitalized on to the maximum extent.

I think in today, venture financing is -- if you get away from the balance sheets, it is practically impossible to get these financed without relatively long-term contracts. Now, this flies in the face, to some extent, particularly in some of your energy projects, that you are not able, by doing this, to capitalize on some of the short-term swings, to add to your profits, but at the same time, you are reducing your financial liabilities so it seems to be a reasonable tradeout.

These are the basic foundations on which new

ventures in the energy and resource area can be financed. Now, within those there are a whole myriad of secondary, direct and indirect kinds of supports that are often required to bring these things into being. On the direct basis, it may be that even after the project is completed, because of the nature of the sales contracts, the cash flow coverage to service the debt may look, in the eyes of the bankers, to be a little too thin, that they want this supported a little longer, this may be done through deficiency agreement, or working capital maintenance agreements that themselves fall away after certain ratios have been satisfied, that the coverage ratio has achieved a certain degree of security, and these can then drop away. These are kinds of direct supports that have a time frame associated with them.

Others are very essential from the bank's point of view, such as management agreements. When we are particularly financing a new entity, and very often these give rise to virtually new companies, that unto themselves are separate entities. We want to be assured that the management is solid that goes with these ventures, and that it will continue throughout the term of the loan. These are kind of secondary supports. Raw material agreements -- all of these are important from the bank's point of view, but may not be all that awesome from the

sponsor's point of view, because what we will attempt to do throughout this whole thing is try to lay off the supports for these new ventures to as many of the participants that are involved as possible, so as not to unduly burden any one of them, trying to satisfy the objectives of the sponsors, in having limited recourse here. But by the same token, still trying to satisfy and having to satisfy the credit criteria of the banks.

Well, I have focused here on some of the background analysis and structural considerations that give rise to the development of projects and the uncertainties -- some of the ways they are intended to be coped with.

I might briefly focus on some general categories of financing techniques that are employed. Now, I will just broadly outline about three of these, and they are fairly jargonish, and I don't want to give the impression that there are pat project-financing formats that are on the shelf, and you pull A, B or C and set a project into motion.

Projects as you all know, are all different. They all have different strengths and different weaknesses, and each of these must be capitalized on for the strengths and supported for the weaknesses.

The first category, however, that is very common in the energy area is the -- for lack of a better

word, a "take out financing". In this instance, an organization, or a group of organizations have an established operation of some sort. It has a record of production, and there are markets for the product, and it may be possible to let that project stand on its own basis, and so to speak, take out the investment of the sponsors. And the most common way of doing this is through the production payment. This technique really began in the energy sector back in the 1930's when the independent oil wildcatter, who didn't really have all that fancy a balance sheet, but he did have assets, and he did have cash flow, and banks were able to come to grips with this by understanding the technology that was involved and get a better feeling for it, giving rise to a nonrecourse financing from the sponsor's point of view, which the banks looked strictly to that facility to pay them off, and once this was done, the cash flow -- future cash flow, of course, returned to the sponsors. This is unquestionably the most popular financing technique employed in the energy sector. It is employed a great deal today in coal as well as in oil, and it normally is applicable only to situations that have been completed. It can take on the form -- a mixed form of this for development projects, but that gives rise to kind of a mixed marriage here. The second category has to do with the expansion of existing facilities.

There is an increasingly popular technique that is being employed here today, in that if you have an existing facility that is capable or desires to have it expanded, in many instances these are on your books at a very nominal cost value. Joint ventures can be created in which this can be conveyed to it to outside parties to join a joint venture in which this can be done on an off-balance sheet by conveying an existing asset -- writing it up to more appropriately reflect market values. It can then provide for the financial underpinning for credit support. This is used increasingly today in expansions, and I think has a great deal more application.

And then finally we come to the start-off projects. Here we have no track record. We have an idea. We have to have sponsors, and we have to have off-takers. Basically going through the kinds of things that I've talked about. These are clearly the kinds of projects that have the least initial intrinsic support, but can be made to satisfy the objectives of the sponsor, can be made to be self-standing if this exercise is carried out in the proper fashion. It -- these are more expensive, the financing going this way, as opposed to going on balance sheet, is of course, a little more complicated and requires longer to do. But we have attempted here just to give some of the ideas how cash flow financing works, and that this

unquestionably will be the technique that gives rise to the larger part of the new energy investments in the future.

I have not addressed myself in this discussion to specific objectives of individual sponsors, which are often set forth as they come to financing institutions, they want total off-balance sheet, no-recourse financing. Well, this is a grand objective, and can be done, depending on what the motivations are behind it. That there may be indenture constraints that permit -- that prohibit direct borrowings to engage in the development of projects. But there may be ways in which this can be done. It does require an extensive dialogue of the financing institutions. I think particularly in project financing, this dialogue must begin at a very early stage, because, for example, in the committment of sales contracts, a great deal can be made of these in terms of conveying credit support to a venture, but if they are cast in stone before the financing institutions have a chance to interact with you, and try to define how these can better be used to convey some of the credit strengths of the buyers to the project, you have lost a great deal of benefit.

Now, this is also true with the specific objectives of the sponsors. Off-balance sheet treatment is not something that is totally objectionable to banks to the extent that they can create credit. They are perfectly

prepared to try to do this. Off-balance sheet treatment has given rise to many very large resource companies, some of the large mining companies of the Pacific Basin really began as project financing: Bouganville, Hammersley, were all project finance giving rise to what are now major companies. I think we will see a great deal more of this.

Well, I have broadly outlined to you today some of the problems and some of the avenues that we attempt to cope with, the uncertainties certainly plague us, because we are very concerned that we are creating credit supports for events that may not happen. But if we can get the ground rules established within each of the parameters that we are talking about, then we can more precisely come to grips with the kind of credit support that the banks must have to retain their position of lenders, and those that they can accept as businessmen taking on a degree of risk. We cannot accept those things that we can't identify and can't quantify, because we don't know what the financial liability is, and it is this arena that we keep stressing, and trying to quantify to a greater degree. Certainly one of the most problemsome areas facing us. I think cooperation and dialogue with industry, Government and the financing institutions is vital, if we are going to overcome some of these problems facing us and get on with the much-needed energy development.

I think it is also imperative, however, that those with the capacity to influence the political arena in which these developments must take place, be aware of the impact of their decisions on the financing, and the development of these resources, and how concrete action can bring these about in a more readily fashion.

Thank you, very much.

(Applause.)

MR. EDWARDS: We have time for a few questions from Mr. Vickers. Is there anybody who would like to ask questions of him, if they do, please move to the microphones in the aisles. We have one over here.

MR. HAYES: My name is Tom Hayes. I'm from Marine Corporation in Boston. I am curious as to the length of time that Bank of America, or banks in general, will finance, versus other types of institutions, such as insurance companies, and what-have-you. Is there a limit to your time --

MR. VICKERS: Yeah. Banks domestically like to talk about eight (8) years. Now, they -- in a project, of course, this puts a severe constraint on it. You've got three (3) or four (4) years construction period, and when we talk about a tenure of eight (8) years, we talk about the clock running from the date of first drawdown on that committment, so that the grace period for construction may

consume three (3) to four (4) years, then the obligation must be liquidated in the remaining three (3) or four (4) years. This puts a very heavy burden on many projects to generate that kind of cash flow. There is very little left for dividends, if it can even handle it, and even a good project today with the kind of financing that is attempted to be laid upon, it is difficult.

Domestically, we do try to bring insurance companies. Most of the insurance companies have not gotten directly into financing, or project financing, per se, but rather have tended to go into joint effort with commercial banks that have developed these, so that we try to blend the two together, then we can get out quite a ways.

Occasionally, commercial banks will go beyond the eight (8), nine (9) year limit, but this is pretty much the guideline we operate on. Insurance companies, fifteen (15) years is quite acceptable, given the proper credit.

MR. EDWARDS: Question, Chris?

MR. OYNES: Yes. Chris Oynes, Bureau of Land Management. That's O-Y-N-E-S. Talking about the increasing terms of joint ventures. Do you see, in the general public land regulations, any discouraging, or hindrances to the formation of joint ventures?

MR. VICKERS: Not in terms of how it affects the financing, per se. I can see a lot of problems in it.

In getting on with the project itself, and basically, when I have been talking about joint ventures, here, I have been thinking of joint ventures of resource companies -- companies that are themselves familiar with these kinds of problems, and how to work through them. Now, to some extent, joint ventures have come into being also in which financial institutions are put into joint ventures. Not commercial banks, but very often merchant banks, and so forth, as a joint venture partner to give rise to an event.

MR. OYNES: I have another question, too. You also mentioned the inability of environmental impact statements to sometimes answer the specific environmental questions that you need for reliability of cash flow. Could you focus a little more on what those ambiguities are? What are the gaps?

MR. VICKERS: I think it is just the interpreting. This cash flow will be interrupted, because of either -- for example, emission standards cannot be met by a power generation facility that is in conjunction with it. There is just a myriad of things in which environmental impact considerations give rise to interruptions in cash flow.

In some -- I guess in the Kaiparowitz, as an example, we recognized those and saw them very early on, and we are not going to move forward, but one thing, I think, that bothers the bank is these have been -- the environmental impact studies have been carried out, they have been submitted, they have been accepted, and then, further on, either legislative changes or environmental groups interrupting the production facility, particularly, I think, this -- the banks tend to cope with it by extent of the performance and completion agreement, so that this project has been in operation for a longer period of time, and probably has tested these considerations to the point that the likelihood of an interruption along these lines is very low, and that's basically, I think, how they are going to cope with it.

MR. OYNES: Do I understand, then, that the problem is not so much with the environmental impact statement, but with the environmental standards?

MR. VICKERS: I think the uncertainties -- no, it's not the statement, per se, that costs money. These are problems that everybody lives with, and -- no, it's not that, it's the uncertainty surrounding that gives us the great concern.

MR. OYNES: Thank you.

MR. EDWARDS: Are there any other questions?

Yes, here?

MR. CAMPERALLA: Dave Camperalla, Peabody Coal Company. Those of us in the coal industry who own Federal leases,and owned them prior to the passage of the Federal Coal Lease and Maintenance Act in 1976,are under statutory requirement to produce from those leases by 1986, or lose them. Many of us in the industry view this as a mandate to perhaps flood the market with coal, thus forcing the price down, and at the same time, producing pressures on the equipment manufacturers, which in turn causes them to raise our capital costs, and at the same time, we are under the problem of having uncertainties in the Federal coal leasing area. I would like to know if you have done any -- or attempted to finance any coal mines in which these situations have existed, and if so, how does the bank view lending money to coal companies in these situations?

MR. VICKERS: Well, it's simply another class of uncertainties. We have done some financing in these areas, but basically, have gone back to trying to build supports around them. I think that we have to come down, and I continue to do this. It is the problem I have been trying to cope with, but these are uncertainties, and they have associated with those costs. Costs that could severly impact the ability of this venture to repay itself, so the banks will inevitably reach to somebody, or some

organization or group of organizations that can cope with this financial obligation irrespective of how -- well, not irrespective, but within boundaries of however ominous it becomes. I think it has within it a characteristic of eroding some of the intrinsic credit strengths the coal companies have, particularly where these obligations are

Some of their future cash flow is predicated upon achieving this, and yet the uncertainties associated

obligations associated with them are tending to erode this. I didn't answer your question, I just compounded the problem for you.

MR. EDWARDS: I have a question here. Ken?

MR. LYONS: Ken Lyons, of the Bureau of Land Management. I was wondering how the financial community views Government absorbing more of the risks?

MR. VICKERS: Well, in any specific financing I think if we can find some credit-worthy organization to absorb some of the risk we would love it. As a philosophical matter, though, I don't think that by and large we are terribly in favor of it. The ventures themselves are required to satisfy our energy needs , as an example, the price to develop the resource is there.

The inhibiting factor or the uncertainties, to the extent that the Government guarantees against the occurrence of some of

these uncertainties -- it seems to me like it is getting the cart in the wrong place relative to the horse. It ought to get rid of the uncertainties, and we can cope with the risk of this. I basically am not in favor of -- in certain specific areas Government support considerations are absolutely essential if these industries are to emerge. I am thinking now of something like geothermal. That clearly is an emerging energy source. I would think that the financial community is just capable of getting involved in this without some degree of support, because the companies, in many instances, that are involved, are too small. But we may see this in some of the other areas. We are to hear a talk on the deep sea mining consideration, which another emerging one. But basic energy sources, such as coal mining, I don't think so.

MR. EDWARDS: One more question here.

MR. HEEDLER: Bud Heedler (phonetic), with (inaudible) Petroleum. My question relates to an early part of your discussion, and also a couple of other questions -- you mentioned the time horizon as being eight (8) or nine (9) years. Yet I have had some experience with the utilities, and we are talking about ten (10) to twelve (12) years for their time horizon. The -- one of the major factors in that time horizon is that again, the uncertainties that are associated with the much-needed

environmental impact statements. Much of the legislation, much of the uncertainty as to what the guidelines are, how the guidelines are to be formulated, and I am thinking specifically of the EPA Region 4 that we've dealt with for about a half a dozen years. I wonder if you would comment on some of your experiences with -- do you have some projects that indeed terminated due to these types of uncertainties? Are there some means that we can overcome some of these?

MR. VICKERS: Here, I have got to say the the banks are involved, at the period of time you are talking is a sort of an ongoing dialogue with a company. Financial committments on the part of the bank are not an issue. They are working with them to try to build up the credit structure, the mine itself, the off-take of utilities, et cetera. There is an ongoing dialogue that in terms of actual financing having taken place, there probably isn't any at this point. We have not been involved in a financing in which a project underway had been terminated or stopped because of this.

MR. HEEDLER: But doesn't it affect your decision at all?

MR. VICKERS: Oh, yes.

MR. HEEDLER: Those uncertainties downstream, somewhere?

MR. VICKERS: They certainly do, and it is just as I was saying, we have to cope with it through additional supports, and they can be in the form of much longer performance and completion, and really is reasonable.

MR. EDWARDS: O.K. Thank you, very much, Mr. Vickers.

(Applause.)

MR. EDWARDS: Our next speaker will speak on the subject of ocean minerals, a new domestic industry, or another lost opportunity. Mr. Leigh S. Ratiner is a partner in the Washington, D.C. law firm of Dickenstein, Shapiro and Morin, and also is a Lobbyist who represents several mining and mineral-related corporations. He was formerly Administrator of the Ocean Mining Administration, in the U.S. Department of the Interior,until January, 1977. He served as a Deputy Representative of the United States at the Law Of The Sea Conference, and was Chief U.S. Negotiator for the Ocean Mining Issues at the Conference from 1972 to 1977.

Mr. Ratiner is now a member of the Department of State Public Advisory Committee on the Law Of The Sea. Mr. Ratiner holds a B.A. Degree from Grinell University in 1959, and an L.R.B. Degree from the University of Pennsylvania in 1962, and a Masters Degree in Comparative Law from Southern Methodist University, which he received

in 1963. We hope that Mr. Ratiner's discussion will be followed by some discussion that would expose the views on all sides of the issues in development of our deep sea resources. Mr. Ratiner.

(Applause.)

MR. RATINER: Thank you very much for that kind introduction. Good morning to all of you. I find myself getting very depressed listening to Ed Vickers as a representative of a new industry. I made some notes while Ed Vickers was talking, which pertain to the concept of uncertainty that is so troubling to the banker.

In the area where deep sea mineral resources are, there is presently no law. There is no significant experience with our technology. There is global and political conflict as to what the law ought to be and who owns the resources. There are very poor markets for nickel and copper right now. We are dealing with non-traditional Government regulators in Washington. Most of the deep sea mining policy today is being made by the Department of State, and not by those who would traditionally have made it--those whom industry knows best. We cannot tell very much about the environmental considerations in the area in which we will work, indeed the legislation pending in Congress, which I will tell you something about in a little while, more or

less gives the environmentalists a continuing monitoring function on the industry's activities at sea in order to acquire the data sufficient to adapt the rules to newly acquired information.

And finally, much of this problem is due to Government-created uncertainty, not to an uncertainty which Government might be willing to help us reduce. The fact of the matter is that very few of these things would be in doubt, were it not for the fact that the United States had voluntarily engaged in global negotiations to determine who owns the resources, which, in the absence of those negotiations might well have not been subject to question.

I find that the remarks I prepared for today really fall into two (2) separate categories, so you are really getting two (2) speeches. One will tell you something about the Law Of The Sea Conference, and what is happening to this vast new source of raw materials. The other will tell you something about Washington, which is almost as bizarre a story as the one of the sea.

(Laughter.)

The United States first got into this United Nations Law Of The Sea Conference back in 1967. Those who promised that it will be over soon usually indicate that it began in 1974 in Caracas, Venezuela. Those who think it has gone on perhaps long enough will tell you honestly that

the United States first started this negotiation together with the Soviet Union in 1967 for reasons having absolutely nothing to do with resources, but rather, for reasons having to do with important defense interests.

You probably haven't read much about this issue in the newspapers. If a treaty is ever concluded, you will read much more about it, as you have read about the Panama Canal. This defense interest which I have mentioned is an interest in going unimpeded through a hundred (100) odd international straits in the world. In short, it is the United States' interest in navigating freely through a hundred (100) Panama Canals.

Now, that interest was well-protected by customary international law. It is an interest in which the United States could stand on three hundred (300) years of customary law and say, "There are high seas running through all these straits, and we have every right to use them, provided we pay reasonable regard to the interest of others and their use of them."

An interesting phenomena occurred in Washington in 1967, however, or in 1966, in the Pentagon. There was an increasing realization, and I am sure one that is not unfamiliar to many of you who deal in overseas mineral projects, that the ability of the Department of Defense to predict, to reduce uncertainty about its

navigational rights and freedom, was dependent, to a degree, on the willingness of the State Department to tell other countries who try to interfere with those rights of navigation where to get off. And the Pentagon took very little comfort from the State Department's willingness -- or I should, in this case, say lack of willingness, to tell other countries where to get off when they threatened freedom of navigation through their waters and through international straits adjacent to their coasts.

And it was, in part, for that reason that this Law of the Sea Conference was started. It was an effort by people concerned with defense freedom to protect themselves against their own foreign offices. The Department of State went along willingly with this idea, because, in fact, the negotiation of a treaty is a much easier thing to do than to actually throw down the gauntlet every time some ministate in the world indicates that maybe the Defense Department doesn't have the right to go through a particular international strait in quite the manner that the Defense Department wants to go through.

Well, that's the essential background, and that background, as you will see by the time I am finished, has had a tremendous impact on the question whether there

ever will be a deep sea mining industry.

In more recent years it has become increasingly difficult for the American Government to defend this treaty negotiation. Perhaps because the United States, for example, has passed its own two hundred (200) mile economic zone legislation, and what was described by American Government officials as a calamity, a disaster for global negotiations,

turned out to be like dropping a thimble-full of water in the ocean. Nobody seemed to care when we passed the two hundred (200) mile bill in this country. Indeed, most of the world rejoiced, because it reduced significantly many of the imponderables that were being negotiated at the Law of the Sea Conference. It was then very easy to say, "Well, the United States has done it, let's all do it, and let's write it into the treaty that way." Indeed, that is more or less what happened in those negotiations.

A new phrase is increasingly cropping up in government rhetoric, and that is, "A Constitution for the oceans is being drafted." This is perhaps an innocent and -- I don't know -- perhaps a devious attempt to stir patriotism from the American people. We lived with

an awfully good written Constitution in this country, and to most of us, the word "Constitution" is a good word. It's almost like "mother" but not quite. And, so the new team in Washington, Ambassador Richardson and others, increasingly in their public statements refer to the fact that we are drafting a Constitution for the ocean, and that that's something of such enormous importance that really all mini-issues and particularly an issue like the mineral resources of the deep seabed (which I ought to mention for those of you who haven't been reading the American Mining Congress journals can, in a matter of fifteen (15) or twenty (20) years from the start of commercial recovery change this country into a net exporter of nickel, cobalt and manganese, with only about fifteen (15) projects underway in that period of time. Today, the United States is an importer to the tune of seventy-three (73%) per cent of its nickel, ninety-eight (98%) per cent of its cobalt, ninety-eight (98%) per cent of its manganese)-- This mini-issue of deep sea mining tends to stand in the way of this Constitution for the oceans that is being written. It is important then to take a look at this Constitution, as it has begun to emerge with fairly clear lines and fairly predictable results. After ten (10) years of negotiation and now going into its eleventh (11th) year, in March, 1978, in Geneva.

The fact of the matter is that this Constitution is in part a very cynical effort by a handful of third-world countries who are attempting to protect their own production of nickel, copper, cobalt and manganese. The Grand Constitution would establish a Government for the oceans almost exactly like the United States Government. It would have an assembly like the U.N. General Assembly, or like the American Congress, only with much more power.

There is an executive branch called the Council, very much like the Executive Branch of the American Government. There is a tribunal very much like the Supreme Court of the United States. In a short while you will see how different can be this global government which in structure looks like ours, but which, in practice, is utterly devoid of the checks and balances, separation of powers, and rule of law typical of our country. And it is enormous and exists for the purpose of controlling and regulating fifteen (15) mining projects between now and the year 2000.

It is not fair to blame the third world for trying to dominate the world's ocean resources, just as I wouldn't think it was fair for the third world to seriously try to blame the United States for tending in the same direction, but it is not necessarily acceptable for the American people and for the American Government to accept

this third world demand, a demand, perhaps misguided, intended to redress past colonial and imperial grievances.

Indeed, it is hard for me to see how a handful of American mining companies being under the tight control and regulation of a new world government can, in fact, redress the supposed past grievances of the third world. But, nevertheless, that's the basic idea.

It is very difficult to justify the United States agreeing to that kind of redressing of grievances. It is not unreasonable to expect the United States to seriously negotiate with other countries about a resource that happens to be the subject of conflicting claims, even though we may be convinced that our claim is the better one. Now, it would be foolish and unreasonable to refuse to participate in negotiations. It would not be statesmanlike, and surely, this country is perhaps more statesmanlike than any in the world today. But, it is not, by definition, required of a statesman that he give up his national interest in the course of negotiations, and you may, in a moment, be able to judge for yourself whether this negotiation has taken us to the point where our national interests are already given up, and therefore, whether this treaty needs to be written off and opposed in the American Congress at the earliest possible time, or whether there is still some chance for salvation. But,

let me make very clear that this third world philosophy and ideology that I have already talked about is not the real governing force in these negotiations, which is something that I find almost an unwillingness in Washington to deal with and understand.

The third world operates as a very large group. I don't mean this in a pejorative way, but it could be thought to act like a mob when it assembles in an auditorium, something like this. And, in acting like a mob, it becomes uniquely capable of being manipulated by a handful of people. Now, countries like Chile, Peru, Mexico, Zaire, Zambia, just a few of the world's copper producers, plus some of the world's nickel producers, including a little bit of help from a country that likes to call itself a developing country when it comes to resources, Canada, also the world's largest nickel producer, this handful of countries has been very successful in manipulating this third world mob scene.

Both sides have tried, and obviously, those who can claim to be developing countries or are sympathizers with developing countries, are more successful than the highly industrialized countries like the United States.

Much of this rhetoric of the third world, which now comes up in many different areas,

was propagated by this handful of countries that I have just listed in an effort to be absolutely certain that -- let's say, the Kennecott Copper Corporation which I represent -- would really be afraid to go to Ed Vickers and ask him for money, because we know that he would say "no" and we are not sure that we want to risk our own equity, when Chile, or Peru, or Mexico stands a chance of pushing a treaty through the United Nations, which will then confiscate our investment.

The issue, then, will be what happens in Washington, if such a treaty comes about. Many of you probably feel that the kind of treaty that I am talking about would never be ratified by your Senate, but I urge you to think carefully about the fact that this treaty is coming to our Senate as a package, a package which will well-include all of those defense interests that I talked to you earlier about. I can think of some Senators who we normally find sympathetic to our need for energy and minerals, who might feel a little torn between a treaty that well-protected American Defense interests and badly protected our mineral or energy interests. So, the question of ratification is not an open-and-shut one, just because the treaty looks bad for our nation's minerals

supply posture.

This year, in the summer the American negotiators came back with a very confused situation from the Law of The Sea Conference. They actually negotiated a treaty, very privately and very informally, and then a different treaty emerged at the end of the session, a treaty which was so bad on its face that Ambassador Richardson was forced publicly to characterize it as "fundamentally unacceptable to the United States." But I am here to tell you that the treaty that was negotiated privately, that did not emerge as the official public document, was every bit as bad as the treaty which did emerge, and which the United States characterized as fundamentally unacceptable. Ambassador Richardson said that this treaty that did not emerge, the informal, unofficial one, was a good basis for negotiation. Now, let me first describe to you the basic elements of the treaty that we all agreed, industry and Government, was fundamentally unacceptable.

First of all, this treaty would create an international seabed authority with a completely anti-development orientation. You may think that that is a

matter of difference or dispute, but the fact is, if you read the provisions of the treaty, you will find that the treaty says what its policy objectives are, and then lists a series of objectives, from which notably and conspicuously absent is a word about the desire of the global community to promote and encourage the development of the resources of the seabed. There are lots of words about protecting the economic interests of land-based producers of the same metals, but not a word about the need to develop resources for the consumers of the world, who are most of the world's peoples.

Second, the international seabed authority's government, while in appearance very much structured like the United States Government, gives to this assembly which I mentioned earlier the supreme policy making function in the seabed authority. To understand better the assembly, you need to know a little about world politics today, and particularly in respect of deep sea mining. There are about one-hundred and ten (110) developing countries who will act out of ideology, which means make sure the industrialized countries don't benefit more than they have to let them from this vast new resource. And as I have already mentioned, they are fairly easily manipulated by those with a very direct economic interest in deep sea mining.

Then there are a group of countries in which you might find some Scandinavian countries, Canada, and Australia, who are either land-based producers of the same minerals found in manganese nodules on the deep sea bed, or are political sympathizers. That is, by their foreign policy, they are sympathizers with the third world, and in almost any international institution today, or in the midst of any international treaty negotiation today, you would find that group of countries, numbering about twenty (20), basically standing up and waving the flag of the third world for reasons of foreign policy, general foreign policy attitudes toward the third world.

Then there is a group of countries which number about ten (10) or fifteen (15), which are collectively called the Socialist countries, the Soviet Union and its friends. I do not include China in that, because China attempts to fall squarely within the group of countries called the third world, and therefore, acts in that compartment, rather than as a separate unit.

The Socialist countries appear very anxious to be sure the United States does not monopolize, through its free enterprise system, deep sea mining. The oceans are, for the Soviet Union and its close allies, an area something like this stage, in which the rest of the world is looking to see who is dominant,

and the Soviet Union, having a goodly percentage of the world's nickel reserve, has absolutely no interest as far as I know in engaging in deep sea mining. Therefore, their interest is in preventing the appearance that the United States, Germany and Japan have taken on an ocean-dominating posture. And indeed, if the United States were the only mining country in the oceans, having conquered the problems of mining minerals in fifteen to twenty thousand (15,000' to 20,000') feet of the world's deepest oceans, and having conquered all problems that Ed Vickers puts in front of us at the same time, we would look like one hell of a country out there in the middle of the ocean. The Soviet Union doesn't like that. Call it a matter of image, but it translates into foreign policy.

Now, I have just enumerated for you about a hundred and forty (140) countries. There are only a hundred and fifty (150) in the world, give or take a few.

The United States, therefore, in this assembly which is given supreme policy-making powers in the international authority, is quite vulnerable. It is not likely, nor is it fair to suggest, as some government officials do, that somehow things that are of interest to the United States from an economic perspective will be done by that assembly. The United States, Japan and Germany account for the lion's share of the world's consumption of nickel, copper, cobalt

and manganese, and they are outnumbered by the hundred and forty (140) that I have just mentioned. So much for the assembly of the seabed authority.

Third: the treaty provides that the access to the resources would be within the discretion of the seabed authority to grant or deny. It sets up a more or less general scheme by which one can evaluate his negotiating package when he approaches the seabed authority for a contract to mine. But, it does no more than that. It does not provide a list of objective criteria which if you, an American mining company, can meet those criteria, you would then be entitled to obtain the appropriate document and carry out your mining activity. No such thing is provided for in the treaty, and that tribunal that I mentioned to you earlier is precluded -- precluded from taking jurisdiction over any matter within the discretion of any organ of the international seabed authority. That means that all of these policy decisions of the assembly which I referred to earlier are beyond judicial review, and so, too, is any decision of the Council relative to either the granting or denying of a license or a contract for seabed mining, as it is called in the international arena. And indeed, the way in which you are treated if you are operating under that contract is not

subject to judicial review, because it is, after all, a discretionary matter with the Council of the seabed authority.

The seabed authority would have the explicit power to deny any contracts to United States companies, or to United States led consortia, for that matter, no matter what country they operated out of, it felt that the United States, as a political entity, as a country, and all of its nationals already accounted for "too much" production from the seabed. This particular perspective has been urged by the Soviet Union, but supported strongly by France and other potential competitors of the American seabed mining industry -- but it could allow the seabed authority to decide that the United States, being one/one hundred and fiftieth (1/150) of the world should be entitled to one out of every hundred and fifty mining projects which would be put out for bid by this international seabed authority. There are other variations not as extreme as the one I just mentioned. The one I mentioned was literally put forward in writing by the Soviet Union. There are other variations of this quota system approach, but I think most knowledgeable observers of the Law of The Sea Conference would tell you that one form or another of a quota system intended to limit American access to the resources of the seabed will, in fact, be

included in the final treaty even if the United States refuses to go along with it.

The treaty itself provides that companies should get rights under the treaty if they are good and if they make the proper kinds of financial deals, and if they comply with the authority's rules and regulations, and if there is a feeling that world markets will allow it, and if the developing countries who also produce these minerals don't object too strongly--the prejudice should be in favor of giving a contract to a qualified applicant. But the treaty also provides that in twenty (20) years the whole system should be reviewed with a view to phasing out all private participation in seabed mining. There would then be only the international seabed authority engaged in mining. I forgot to mention, by the way, that even during the first twenty (20) years, the international seabed authority has its own mining arm called the enterprise, which is taken from the Spanish "empresa". It was in fact another of those calculated little negotiating moves by certain Latin American countries who produce copper, to toughen the negotiations for the United States. The Enterprise was created by them to pressure the United States to accept the 200 mile limit--in the days before our Congress embraced it--but the rest of the third world was made to

understand that the Enterprise personified the sovereignty of the third world in the deep sea, and therefore, the Enterprise should exclude all private operators. Countries could

also be excluded in twenty (20) years, and the result would be that only the enterprise, personifying the sovereignty of the third world would be permitted to mine the resources of the deep seabed, which would operate pursuant to policies that might not be consistent with the idea that when there was a need evident in the market, the supply should rise to meet that need. Indeed, it is more likely that the reverse would occur. Now, I am not suggesting that this treaty can create a cartel in and of itself. It can't, although from some statements made by Prime Minister Trudeau the other day about the possibility of having a nickel cartel to protect Canadian jobs. I shouldn't discount the cartel potential of a deep sea mining authority working in collaboration with a Canadian government that sees its interests that way. Nevertheless, most economists would agree that a cartel would be difficult to form for all of the metals contained in manganese nodules, though the disruptive effects of attempting to start one could be very significant, indeed.

The treaty makes it reasonably clear that if you

want to do business in the seabeds during the first twenty (20) years, before you get phased out, you really would be smart to go do business with the enterprise, and not try and do it on your own by getting a contract directly from the seabed authority. One reason that you would appear to be smart is that the Enterprise according to the treaty, is exempt from all national taxation, the world-over. That being the case, it might, indeed, be economically or financially advantageous to take a contract with the Enterprise but in doing so, there is absolutely nothing in the treaty which guarantees that the Enterprise should respect the integrity of any contractual arrangement which it makes with an operator. So, it is a question of just how much those financial benefits might be worth.

Well, I have mentioned that there was another treaty negotiated which the American Government participated in, and the one I just described was sort of a fluke that came out at the very end of the Law of the Sea Conference. That treaty, on all these points I just mentioned to you, the best that can be said for it is that it is in some areas a little more vague--not so on the assembly, however. The assembly is very clear, even in the unofficial, informal, invisible treaty, the assembly is dominated by countries whose interests are not the same as ours, and that have supreme policy-making powers, and that its decisions are exempt from dispute settlement.

But, on most of these issues, the differences between the two are differences which are largely ambiguities, and it is possible to come back to the United States, to Washington, to the Senate as an American negotiator and argue that if this first treaty, the informal, private, invisible treaty were in fact laid before the Senate and the mining companies opposed it, the reason they would be opposing it is because as is typical of industry, first of all, they want everything, second of all, they are being paranoid and indeed, an

international seabed authority will operate happily for the benefit of all countries, including the United States. Under this draft treaty the defects for the United States are buried beneath the surface more cleverly, and you must find very patient Senators who will listen carefully to detailed explanations of how the treaty operates.

It is a somewhat complicated procedure, and when the treaty has twenty (20) or thirty (30) major defects and a hundred (100) less important ones, it is sometimes hard to get an adequate hearing in Washington.

The fact of the matter is, that so long as the treaty has the assembly as the supreme policy-making organ, and its decisions are nonreviewable by a tribunal, (in any case, even if its decisions were reviewable by the tribunal, who would be the judges on that tribunal?)

One can be guaranteed that with the political makeup of the world as it is today, every decision that the assembly makes will, in fact, be a decision which the formal treaty has already given us a preview of. The formal treaty is very clear, but there can be no legitimate doubt that it is probably mild compared to what the assembly would do once the United States was captured into

that organization, and was willing indeed to participate actively in it and abide by the decisions of the organs of the international seabed authority, in this case, the assembly.

So, if we were at a stage where that treaty, or anything like it was being proposed to the Senate, you would hear a lot of noise in this country. The American press, on whom we seem to rely to tell us what is nationally important, might even have to take note of this ten-year-old negotiation which is now going into its second decade, and increasingly gets worse each year. But the treaty is not about to be presented to the Senate. The negotiations are going to resume in March, in Geneva, as I mentioned earlier, and an interesting thing will happen there, which bears on the predictability of this treaty as a document which we will ever have to face in this country. What will happen is, the United States will have to make an effort to reclaim this invisible, informal text which I have just described to you, because it is a better basis for negotiation than the final text which actually emerged, which was pure third world -- a much more honest treaty, I might add, than the one which we participated in creating. But in the effort to reclaim that earlier draft, in a world negotiation which looks for general trends in order to correctly perceive what is in the mind of countries

that everyone is dealing with, the general feeling will be that the United States must like that other draft treaty or it wouldn't be trying to get it back on the table again. And you end up with that other treaty being the starting point for the next series of negotiations, because the U.S. and a few others will be the only countries in the world that presumably will be demanding to negotiate on the basis of it.

That's the threat to the future of deep sea mining. But, we need to look a little bit at the domestic threat. The best way I can describe the domestic threat to deep sea mining is that it is self-made in a Washington, D.C. that really no longer resembles what our Constitution thought was going to be the system of government that would live forever in this country. Washington is a very peculiar now. Yesterday I heard an interesting question from the audience-- how do you deal with Washington? How do you participate in the decision-making process? It used to be that we thought we went to our Congressman, particularly the ones that came from our respective districts, and that

if we had a good cause, they championed it, and in the course of trading among Congressmen, that particular cause would end up being treated at least as well as the causes being championed by other Congressmen on behalf of their constituents, and that the Executive Branch of Government more or less was expected to follow the basic policy guidance provided by Congress. Well, the world isn't like that in Washington. I don't think there are very many American people who can claim that the Congressman from their Congressional District has a slight bit of power in Washington.

Well, the result of all this, to put it very, very simply, is that American people end up paying other people called lobbyists to represent them in Washington.

The mining industry has a series of "Congressmen". The environmentalists have a series of "Congressmen". The consumers have a series of "Congressmen". The trade unions have a series of "Congressmen". And these are people who are basically paid to look after those constituent interests, that otherwise, might well go unrepresented, in Washington. Some of them do it on a full time basis, for example, the American Mining Congress. Others do it in a project-by-project way, depending on the issue. But if ocean mining were left to the natural constituencies of the real Congressmen in this country, first there would be no Congressman advocating the cause of ocean mining, simply because there is no constituency. Think for a moment about Congress. Congress deals with the problems of today, with constituent interests. For those of you who worry about participatory democracy, Congress really cares how many letters and telegrams it gets. That may sound very trite to some of you who are accustomed to staying out of Washington, which shows reasonably good judgment --

(Laughter.)

-- but the fact of the matter is, that as I work and as my colleagues work on ocean mining legislation or other bills which I have worked on, what you find is that the most important thing to the average member of Congress is his mail, and the average member of Congress

knows that his mail is manipulated. He knows that. He knows that companies hire public relations firms in Washington whose specialty is getting the mail out from various constituents and districts, and putting the pressure on -- that's why we're called pressure groups -- but the fact of the matter is that the Congressman is also sophisticated, and he says, "Gee, if they could get all those people to write in to me, and nobody is writing in against that same point of view, that's probably the majority point of view." So, even though the Congressman is sitting and looking at five thousand (5,000) post cards that all say the same thing, and were printed on the same mimeograph machine, and were sent in from many, many different people, it cannot fail to and never does fail to impact on that Congressman. I frequently have the unpleasant experience of being told by Congressional supporters and friends -- usually from western states -- they are the only ones that understand mining in Washington -- "Why can't you get the mail coming in? Where are the telegrams so I can wave them around at Committee meetings?" And the answer is: There aren't any because there is no constituency for ocean mining. We haven't built a processing plant. We haven't constructed any ships, and because of that lack of constituency, we perhaps never will. It's a very difficult situation to be in with a new

industry, but it is a fact that our political support in Washington, from the place where it counts, which is out here, is virtually nonexistent, and so we depend very much on something that is not comfortable to depend on in Washington, and that is foresight, imagination, willingness to serve the public interest, the kinds of things that generally speaking, do not govern the way men and women behave in Washington, D.C.

I heard Assistant Secretary Guy Martin talking yesterday about how the adversary system really was not productive, and it wasn't the way to go about getting things done, and if we would all just take our case to his door, and work cooperatively with the Interior Department, somehow that would be the best way, because it was non-confrontational and cooperative, and we don't have to run around to the Senate and the House, we just need to look to our Executive Leadership.

Well, the fact of the matter is, Washington is totally an adversary system. There is rarely a bureaucrat, whether it be in the Executive Branch or in the staff of Congress, the Congressmen themselves, who do things just because they sit down and -- in discussions with their families and say, "You know, I think this would really be in the public interest." If they did think thoughts like that, they would come back to their staffs in

the morning and be told they were stupid, and that the staff was really much to busy to research hairbrained schemes that some individual Congressman came up with while talking to his wife and kids.

(Laughter.)

If you don't know it, if you haven't been to Washington to help lobby an issue, it's really an eye-opener to find out that the clout in Congress is with the staff

and the staff is often young and inexperienced. Few Congressmen, except on issues of the greatest national importance, really have the time to look at any particular issue in depth unless it is a constituent issue, and a constituent issue rarely comes before the Congressman who has the power to do anything about it.

Ocean mining, for example, has fallen to Congressman John Murphy of Staten Island. He is the Chairman of the House Merchant Marine and Fisheries Committee. As far as I know, he has no constituent interest in ocean mining he just believes it would be good for our country. The House Interior Committee, under Congressman Udall, for some reason failed to take a serious interest in ocean mining legislation at first and has now taken a new interest. If I have time, I will describe it to you in a moment--it's not a very nice story.

Congressman John Murphy of New York has taken the lead in introducing legislation which would have the effect of providing a degree of stability to the investment

climate so long as the United States continues to negotiate what is obviously a very difficult treaty to invest under. Indeed, my client would have great difficulty deciding to invest in ocean mining, with or without Ed Vickers help, if either of the two treaties that were negotiated at the last session of the Law of the Sea Conference were to come into being. It appears very unlikely that any treaty will come about that will reasonably reflect the honest balance of power that exists in the world, and by that I mean simply that the United States is in fact a very important country, and that a treaty which pretends to make us a very unimportant country, or a country no more important than a hundred and fifty (150) other countries, some of whom have smaller populations and sizes than some of the states of the United States, such treaty is not realistic, and won't come to pass.

Now, this legislation sets up a system of law that you are all familiar with, it's a licensing system with the usual "resource management" regulatory regime.

Don't misunderstand -- this is not the 1872 Mining Code that Congressman Murphy has put in -- this is very modern resource management with a heavy emphasis on management, that we heard yesterday from the Interior Department. Planning and management functions are not the prerogative of the company in legislation any more. They are governmental prerogatives, and this legislation is steeped with them in much the same way that other modern resource legislation is. But if we could live with that, the legislation in question has another important feature in it. It has something which can be called political risk insurance, or investment guarantees, and it is a very curious thing. It is running into some awfully tough sledding in Washington. Let me see if I can very briefly

in the few minutes that remain to me, explain that.

In Washington, when Congress wants to make new law, basically sweep an area clean, say the Clean Air Act, as an example, great attention is paid in Congress to the exemptions out of the new system, or to time limits to bring things into conformity with the new system. For want of a better word, let me call this the "Grandfather Rights Syndrome". It is the American way of avoiding confiscation. Various Congressmen, committee chairmen, and subcommittee chairmen sit with members of industry and very carefully work out legislation, with a view toward exempting from its immediate application those people who would generally suffer economic hardship as a result. This is done for workers, it is done for big business, and it is done for everybody. It is a way of life, and perhaps because it is done, we are able to make new law in this country. I think it would be extremely difficult in the kind of society we live in to ever make important new innovative changes in our legal system if we weren't prepared to do this.

Well, this treaty is doing the same thing, and normally, one would think, "Well, let's put Grandfather Rights in the treaty." But Congress isn't negotiating the treaty, and when Congress gets this treaty before it, it

has to vote yes or no. It cannot vote to add a new Section called Grandfather Rights. It didn't negotiate the treaty with the rest of the world, and the result is that there is no way that an American negotiator can guarantee in a meaningful way, in a way that Mr. Vickers will take seriously, that he simply won't bring back a treaty unless it has Grandfather Rights in it for those who have expended so far a hundred and fifty million ($150,000,000.00) dollars rising rapidly over the next three (3) years to about three hundred million ($300,000,000.00) dollars for the few companies that are already deeply committed to ocean mining. So the idea was to put into the legislation an insurance feature. The insurance would essentially compensate you for loss of investment suffered as a direct result of a treaty being ratified which confiscated that investment-- a treaty being ratified by the United States. Indeed, I have heard the argument that, "Oh, that insurance is just awful, because we only insure against things that foreign governments do to our companies," and yet, in the case of the United States, where the risk of loss is in the hands of the United States, both in the negotiation of Grandfather Rights and the question of whether the treaty should be submitted for ratification, it seems to be unheard of to provide industry with insurance.

Well, I don't know of any other way to give

people like Mr. Vickers -- to give the Board members, to give the stockholders of large American companies--the feeling that this investment is a sensible, proven thing to do with stockholder's money and bank money. There really is a treaty that could be brought back to Congress, and sold on defense-related reasons having nothing to do with deep sea mining, which really could confiscate all the investments made in the meantime

Well, obviously, no company can be in a position of accelerating investment to full scale commercial recovery so long as the threat of a confiscatory treaty lies just around the corner. Yet, Congressman Udall, in the House Interior Committee just last week to delete from the Murphy Bill, over which he had concurrent jurisdiction, the investment insurance provision. We lost that vote by four (4) votes in the full House Interior Committee, and indeed, there is a risk we are going to lose that vote in the Senate Energy Committee, in part because there is no constituency, in part because there is no one in Government who really will speak out on this issue, which

is totally controlled and dominated by foreign policy considerations, again having nothing whatever to do with resource management issues.

Now, all that is a very sorry turn of events, and I want to leave you with the feeling that I am rather optimistic --

(Laughter.)

-- I think that by the middle of next year, it will be much clearer to all of you, and hopefully to our Senate that the best treaty which can be negotiated at the Law of The Sea Conference is not one that could ever be seriously recommended for ratification. That will remove significant uncertainty in the ocean mining field. At the same time, a form of deep sea mining legislation will pass Congress. I would guess in June of 1978.

will have legislation passed in Washington, probably signed by the President.

It is problematical whether it will have investment insurance in it, but bear in mind that an increasing common perception that the treaty is nonratifiable, increasingly reduces the need for the investment insurance feature that I have described. If, on the other hand, the Administration comes back with the treaty which they

say is in the ball park, and we know is not, then the importance of investment insurance, or some form of strong political demonstration that we won't ratify a treaty without Grandfather Rights in it, will need to be found, and made public, and committed to by our Government.

If neither of those two things happen, there probably won't be any deep sea mining in this country. All of our companies have had to already go to foreign partners to form their consortiums to spread the risk. In all cases, the technology of the American companies who are now leading all the consortiums has effectively been transferred and should the American companies back out, in favor of their foreign partners who are subsidized by their governments, the fact is, ocean mining will simply become a new source of raw material imports for the United States.

Thank you.

(Applause.)

MR. EDWARDS: Thank you, very much, Leigh. We are pressed for time, but I feel compelled that we should ask -- give time for some questions, briefly. Question here?

MR. HANCOCK: Don Hancock, Albuquerque. As usual, Mr. Ratiner, you have made a very eloquent kind of a presentation. Also, as usual, you left out a number of

things. I will comment that I am glad to see that now, as you usually don't do, in before-time, that you identify yourself as a Kennecott Lobbyist as opposed to a Committeeman Negotiator. But there are several things, it seems to me, that are important for people to understand. One is, you finally did get around at the end to saying that the Department of Defense is opposing your legislation. That's important for people to know, because at the beginning it seemed like you were trying to say it was the State Department that was negotiating this, and the Defense Department wasn't so interested in what happened in the legislation. I think that's important. I am also glad that you finally admitted that you are not in favor of a treaty, which is a change, of course, from the Murphy Bill, one of its purposes says to encourage the successful negotiation of a comprehensive international law of the sea treaty. I am glad to see that you are finally admitting that that is, in fact, not what you are trying to do. I think there are a couple of things that maybe you could answer for us, to help in our understanding of what's actually happening now. Why is it that you don't feel that a treaty that would protect navigation, fishing through the economic zone, which was, in fact in our SNT before we passed it through Congress -- pollution control, scientific research, et cetera -- why is it that you feel

that that kind of a treaty is not in the public interest? Whereas, your mining legislation does seem to be in the public interest in your mind. Keeping in mind what you said about further importing of those minerals, it is also true that it doesn't seem to be a major strategic problem right now with those minerals in the fact that we do have stockpiles of them, and have fairly assured sources, as you yourself said we economists admit. But why is that kind of a treaty so totally opposed to public interest? That you are trying to represent, through your mining legislation?

Also, it would be helpful for us to understand how the Murphy Bill protects and deals with thosē kinds of environmental uncertainties which you, yourself, admitted, since the environmental protections as they were written in the Murphy Bill apply only to the sea bed floor, and not the other aspects of the environmental problems that would come through bringing minerals up those fifteen or twenty thousand (15,000 or 20,000) feet, and in processing?

MR. RATINER: That's quite a question.

(Laughter.)

MR. RATINER: I am glad you asked that question, Mr. Hancock, because I think it gives everyone in the audience a feel for what Washington is like.

(Laughter.) (Applause.)

MR. RATINER: Let me, first of all, correct your misstatements and answer your questions, and I will do it just as briefly as I can. First of all, your statement that I don't disclose who I represent in Washington is false. You should not read the Washington Post, which likes to give me free publicity from time to time. But rather you should read the statements that I actually submit to Congress, which always include the fact that I represent ocean mining companies, in fact, Kennecott Copper Corporation.

MR. HANCOCK: In fact, that is documented, and false.

MR. RATINER: Well, we won't solve that here, but I would suggest you do a little better homework.

Second, I did not say today that the Defense Department is opposed to legislation. It may be that there is a problem with the acoustics in the room, or that I didn't speak clearly. The fact is, the United States Government Administration, unlike some of the world federalists in Washington, is in favor of the passage of deep sea mining legislation. They oppose specific features of it, including investment insurance, which is perfectly understandable.

You said in your statement-question that I was opposed to a treaty, and that you were glad that I admitted

it. I am not opposed to a treaty. I am opposed to the two (2) treaty drafts which I described. I happen to be one of the few people in Washington, perhaps in this country, who really thinks a treaty would serve our national interest, but it has to be a sensible treaty, and the treaties which I am commenting on today are not sensible treaties. You asked why not -- you cited pollution control, fishing limits, and a bunch of other things. I don't have time to answer you right now on the substance, but I will say this: the United States fishing industry, coastal and distant water, is not supporting the treaty. The environmental community in Washington is not supporting the treaty. The scientific research community, which finds that it now has to get permission to conduct ocean-related research within two hundred (200) miles of every country's coast in the world, is not supporting the treaty. Now, they have reasons of their own. I know those reasons, but there isn't time to go into them.

On ocean mining grounds, the treaty is defective for one very simple reason: there will never be an ocean mining industry under the treaty as now drafted. The conditions of investment are too onerous, the discretion in an international sea bed authority too great, the uncertainty and unpredictability for investment is mammoth.

Now, on pure national interest grounds, and

this I say to essentially the so-called internationalists, and world federalist oriented, those interests are not well-served by a treaty which does not even attempt to take into consideration political reality in this world. If you create a new international organization which gives the United States essentially one vote when it is predictable that it will be outvoted on almost all issues of importance to its national interest, what you are doing is creating a failure, and the next international organization that is created, and then fails, is an organization that will cause all Americans to lose faith in the very process of international negotiations at the global scale. I think that would be very undesirable, and for that reason alone, and even if I didn't represent a mining company, I would oppose the two (2) treaties that are before us now.

(Applause.)

MR. HANCOCK: If you will, I think the thing that is important to note is what Mr. Ratiner said about the problems of the treaty are definitely true, and the reality of the world situation is that if conditions that he said -- about how bad they are, are going to get infinitely worse if there is not a treaty.

MR. EDWARDS: O.K. We are running very short on time, and our next speaker has a very tight schedule, so

let's take a very quick five-minute break, get in and get out -- I mean, get out and get in. You cannot bring your coffee in here, so let's hurry it up as much as we possibly can.

MR. BABCOCK: I have a question here. I am Ken W. Babcock, from Rocky Mountain Energy Company. I would be very interested to know who the gentleman questioning Mr. Ratiner represents. He indicated he was from Albuquerque. That's all we know.

MR. HANCOCK: Yes. I work with the United Methodist Church.

(Whereupon, a brief recess was taken.)

MR. EDWARDS: Our next speaker will discuss the financial requirements for energy development. Mr. Robert O. Anderson is Chairman of the Board and Chief Executive Officer of the Atlantic-Richfield Company, Los Angeles, California. Mr. Anderson, Petroleum Executive, Rancher and Civic Leader has been active in the oil industry since his graduation from the University of Chicago in 1939 with a Bachelor of Arts Degree. In the past thirty (30) years, his business endeavors have included, in addition to the exploration, production, refining and marketing of oil, cattle raising and feeding operations, mining and milling, and general manufacturing. Currently, he is owner of the Lincoln County Livestock Company, and

Chairman of the Board of the Diamond A Cattle Company, both of Roswell, New Mexico, and an Officer and Director of numerous businesses, civic, charitable, educational and cultural organizations. I present to you now Mr. Robert O. Anderson.

(Applause.)

MR. ANDERSON: Thank you, Mr. Chairman. It is an honor to speak to this group here in my home state, and with standard New Mexico weather outside.

I have a prepared paper which I am not going to use. I will submit it for the record, and I think it reads as well as it comes out as a speech anyway.

But really, what I wanted to talk about is a little of the philosophy behind financing requirements for the energy problem, the energy crisis. The President, on April 20th, equated it to the moral equivalent of war, and I think it really is. It is an issue that is not going to go away. It is an issue that is going to involve a tremendous amount of change in our society, regardless of which way it goes, and it may, in all events, even show whether a free and open society, such as ours, can face up to a crisis of this magnitude, and deal with it on a voluntary or a timely basis.

Now, first of all I think we have to decide what we want in the way of energy before we can really

intelligently discuss how we are going to finance it. Last spring, Stanford Research did a document for ERDA on the energy problem. It was one of the papers that was submitted prior to the President's speech. But in it Stanford Research pointed out that different people perceive the energy problem in rather different ways.

Now, they came up with two basic perceptions. They had two others that were not germane immediately to the problem. But they had what they called "Perception A", and I think I am an "A", and -- I know I am -- now, "Perception A" thinks the problem is how do we find enough energy to meet the needs of a growing society? In other words, how can we keep our growth, what we are doing in this country, on track without suffering a setback. It also recognizes that a strong and growing America is absolutely vital in terms of our international obligations and the chance to bring the developing of the third world along on a trade basis.

It recognizes the need for a growing economy, job mobility, job opportunities, particularly for the lower economic classes. It is a traditional American approach using the free market mechanism as the basic way of approaching it. It accepts controls as needed, recognizes that the free market mechanism may not always be perfect, particularly in period of shortages, but while

it recognizes controls, it tends to minimize.

Now, if we go ahead with the "A" perception, which to me is a vital, strong America, we are looking at an enormous capital outlay, possibly as high as a trillion ($1,000,000,000,000.00) dollars by 1985, and that would be not only for domestic needs. It would be needs for the rest of the world of which we are a vital supplier.

Now, the "B" perception is in sharp contrast. Here again, I want to point out this is not my document, this is Stanford Research. The "B" perception sees the problem as, "How does America reduce its demand, its usage, to meet what is available?" This is a very, very sharp distinction. "A" says we increase the supply to meet the need, the "B" says no, we must reduce what we are doing to a more reasonable level consistent with what we have available at this time.

Now, of course, the "B" group are very interested in environment. They perceive the burning of energy as bad, per se, for the environment. I think it would be very difficult to say that consumption of energy is good for the environment, but there are strong environmental concerns in the "B" perception, particularly the burning of coal and other fossil fuel.

There are in, according to Stanford Research, the "B" group, see this as possibly even a fortuitous

happening in our society, because it will force us as a nation to give attention to the social and economic change that they think is not only inevitable, but desirable.

Now, from the "B" perception, it is obvious, if you are not going to increase supplies, and rely primarily on reduced consumption, that rationing and allocation are inevitable, and if they are inevitable, there should be no real hesitancy about approaching them, and putting them into operation, because they are going to happen sooner or later.

If one looks at the President's Energy Message, one can see that a certain amount of "B" perception is contained therein. The maximum emphasis on conservation, the strong bias, or strong input of transfer payments, lower income groups, would fit very closely with the "B" perception.

Now, the capital outlays, if you are looking at it from the "B" viewpoint, of course, are greatly minimized. Because, you are simply not going to make an all-out effort, or go to the tremendous expense to increase our energy available.

Now, I could make a pretty good aproach for the "B" viewpoint. I think that we are a wasteful society. We probably do have to change our ways to some extent, but there are three (3) absolutely and very difficult problems

to resolve here. One is built in structural unemployment, if we go to a declining consumption of energy, and unfortunately, no one has been able to come up with an answer to that. Also, of course, the impact on world trade and our responsibility to third world nations would be impacted very, very negatively. Our security as a nation, of course, would be equally damaged by a failure to provide for our reasonable and growing needs for energy.

So, I'm the "A" type, and I think the "A" viewpoint would be the more or less classical, heriditary American thinking, on our economic problem as a growing society, growing GMP, rather than a no-growth.

Now, it is interesting to look back twenty (20) or twenty-five (25) years ago, if this problem had come up, one could have predicted without any hesitancy exactly what would have happened. The problem would have been simple, it would have been viewed as a time for this country to rise to meet the need, all-out economic mobilizations, it would not be a political issue, it would be a bipartisan issue, and the United States mobilized in -- particularly in an economic sense -- with a real committment is an awesome sight, one that has not been seen in thirty (30) years, and one that the world probably respects far more than our military strength.

As I said earlier, either way we are looking at

social change. If we permit -- if we do not continue to try to bring in new methods of production, or if we rely on what I call a more exotic form, we are looking at higher costs. They are inevitable. If we continue to rely on OPEC and particularly eliminate the two low-cost possible solutions, nuclear and coal, and while we have not completely eliminated it, we have negated them in the last six (6) or eight (8) months to the point that they will not play the role that I think everyone in the energy field saw developing a few years ago.

Now, I have been thinking lately that we are at a -- roughly at a period in time where the cost of energy is two ($2.00) dollars per million btu's. I never thought we would see it, never thought I would live to see that price level, but I think we can also look and imagine a four ($4.00) dollar level of btu's, particularly without coal and nuclear.

Now, if one begins to speculate on the world at four ($4.00) dollars per million btu's, you see tremendous change. The size of vehicles, the size of homes, consumption patterns, cost of food and everything else. I think we are probably headed that way, and as I said, I didn't think it would happen, but I think we would be foolish not to realize by choice that that is the direction we are moving. The problem will be how can we move from

two ($2.00) dollar energy to four ($4.00) dollar energy with a minimum social disruption, particularly in relation to jobs and inflation?

Now, the financing -- if we go the "A" route, it is obviously going to require a tremendous effort on view of the private sector and undoubtedly even involve the public sector, the Government, as well. Unfortunately, companies in recent years have financed a great deal of their expansion and their energy requirements through debt. And while their earnings have gone up, about three (3%) per cent, if one takes it on a cost of dollar basis over the last four (4) or five (5) years, the debt ratio has gone up higher, the market value of common stocks today is low enough that it is very difficult, and really quite impossible to raise money through the sale of equities, and the financing under present market conditions would almost have to come from debt, and to the extent that the people who loan money are willing to make it available.

Now, the reason I am here today -- I happen to lean very strongly toward what I call the all-out economic mobilization approach. Herman Caan calls it the brute force approach, and I think Herman is an advocate of it these days. It involves two hundred million (200,000,000) American people. It declares that our energy problems are of that magnitude. It would require sacrifices

for everyone in this country. It would be a powerful economic stimulus to a country that right now has unacceptable levels of unemployment. As a matter of fact, it might become such a powerful economic stimulus that it in itself would generate the need for some fiscal control.

We are approaching this on the assumption that it is a crisis that can be managed. Now, I would like to point out that the last crisis we managed was Viet Nam. And it wasn't even a crisis when we started, but we certainly made one of it. We are,in a way, in a similar position today. We have enormous economic strength, which we are unwilling, for some reason, to unleash. Viet Nam, we had tremendous military strength, but again, that we were unwilling to unleash. The people who managed Viet Nam were intelligent men, men of good will, good character, fine learning, the same type of people who propose today to manage this crisis. Both promise that you will hardly notice it.

Now, I happen to believe that we need something in this country, a project that involves all of us, simply to restore the belief in our society, and the belief in a free and open democratic institution. We managed the decline of national pride in Viet Nam, and I cannot see how -- or get very enthusiastic about managing the decline of our economic strength, together with the social

opportunities expressed in jobs and mobilization in the society. It is time to close ranks, time is of the essence. In the four (4) years since the embargo, which certainly should have been a warning, we have done little or nothing. We continue to drift. I suspect one of the reasons we drift is because there is such a sharp difference between what I described as the "A" and the "B" perception of the problem.

The nation has the people, we have the resources. I am not sure we have the time, but if we don't start now, we certainly aren't going to find it later. There are no easy solutions. We are locked into a fossil fuel, oil and gas, largely, economy for at least twenty (20) or thirty (30) years. What we need is a method to buy the time to develop what undoubtedly will be the energy source of the future -- solar, possibly the wind, geothermal, and hopefully some other yet undiscovered but clean sources of energy.

So I am here today to say that I hope this country will move ahead in a strong and a positive way. I think we need it. The time is now. I think the only missing ingredient, really, is do we have the will, as a nation, to do this?

Thank you.

(Applause.)

MR. EDWARDS: Thank you, Mr. Anderson. We do have a little time for a few questions. Does anyone have any questions of --

MR. ANDERSON: Questions, not speeches.

MR. EDWARDS: Mr. Anderson says he would prefer questions, not speeches.

(Laughter.)

MR. EDWARDS: Any questions? Yes, right here.

VOICE FROM AUDIENCE: Sir, would you address the divestiture question as it faces us, and what your analysis is of what is going to happen in that area?

MR. ANDERSON: Well, divestiture has been an issue in the halls of Congress since I started in this business in 1938. It's hard to see how it is breaking the companies up, but really, in the final analysis, has to provide the manpower, the research, the technical skills and all, of breaking them up prior to embarking on a massive national goal, is going to be productive.

Breaking the companies up would be less damaging to the companies than it would be to the public at large. I think it would take ten (10) years at the minimum. It would almost stop development, because companies wouldn't know whether they are going ahead, how they would be broken up -- I don't think lenders would be anxious to lend money to a company that they didn't know what the assets would be

behind it. I think it would create an almost total impass in energy industry as we know it today, while we sort out the pieces, and I said, I think the industry -- we have a remarkable group of people in our industry, and I -- it's one of the things in my life and I am proud to be part of them, and associated with them. They are resourceful, they are hardworking, they are loyal, and I am confident they would respond, and that they would work out problems in a viable way, but I don't think the country would benefit by it.

MR. EDWARDS: We had one other question right here. Yes?

MR. WILSON: Mr. Anderson, my name is Scott Wilson, Yates Petroleum, Artesia. This is probably an unanswerable question. I was just wondering if, in all sincerity, you believe there is any possibility that the Federal Government will allow the free enterprise system to solve this energy crisis?

MR. ANDERSON: Will allow what to?

MR. WILSON: The Federal Government will allow the free enterprise system to work?

MR. ANDERSON: Well, I think there has been a very conscious decision that it is a problem that should be addressed outside of the free market mechanism. Now, I am sorry to say that, but I think if one looks at it

carefully, one would reach that conclusion, that it has -- a conscious decision has been made that this crisis should be managed and regulated, and that the free market system should be reduced to the minimum. I happen to think it would be an extremely costly experiment for this country to deny a system which for two hundred (200) years has provided what we have here -- even here today.

MR. EDWARDS: Are there any other questions? Chris?

MR. LYONS: Chris Lyons, Bureau of Land Management. I was wondering if you would just address what I conceive, anyway, as one of the philosophies, or guiding principles behind the Government's choice of means, this Group "B" approach, which is, I think, a contraception to the free enterprise forces, are not, or could not be totally at work, both internationally in the sense of OPEC and domestically because of a common conception that the large market or these dominating markets, so that there is a non-free enterprise system. Could you address that, too, as to whether or not -- you know, you advocate free enterprise, and the perception is that it isn't there.

MR. ANDERSON: As somebody has said, if the oil industry is a conspiracy, it is the worst-run in the world. And I think if you look at our profits, you would have to agree on that. It is not a conspiracy. I

have been in it all my life. It is a highly competitive industry. Its profits are not excessive. People say, "How about the things you hide?" And I have a very simple answer: if you read the Securities and Exchange Commission Regulations, and the penalties, and review court decisions in the last twenty (20) or thirty (30) years, there isn't a single executive in a large oil company today that would in any way attempt or be party to falsifying their earning. It would be absolutely unthinkable.

MR. ANDERSON: Well, I think it has worked. We have the greatest society in the world. I am tired of our being ashamed of it.

(Applause.)

MR. ANDERSON: The entire world is tired of our being ashamed of it. They need leadership as badly as we do, and when we sit at home and lick our wounds, and explain how poorly we do things, and recriminate each other, it is wrong. This is a great, great country. I am proud to be on the platform with that flag.

Thank you.

(Applause.)

MR. EDWARDS: Thank you, Mr. Anderson. I believe Frank Ikard is here -- oh, yes.

Our next speaker will talk on oil and gas, and a forward look. Mr. Frank N. Ikard has been President and Chief Executive Officer of the American Petroleum Institute since 1963. After graduation from the University of Texas with a Law Degree, engaged in private practice in Wichita Falls, Texas. He then served a four-year term as District Judge. In 1951 he was elected to the United States House of Representatives from the 13th Congressional District of Texas, where he served until his resignation in 1961. Mr. Ikard is Director of several corporations. He has been Vice Chairman of the University of Texas System Board of Regents. He is a member of the National Petroleum Council, and a U.S. Committee member of the World Petroleum Congresses. Mr. Ikard attended the U.N. Conference on Human Environment at Stockholm as a member of the U.S. Delegation. Mr. Frank Ikard.

(Applause.)

MR. IKARD: Thank you, very much, Mr. Chairman. It's a real privilege to be here tomorrow -- today -- I have some tomorrow -- I was in Dallas yesterday, and I don't know where I will be tomorrow -- but to have an opportunity to visit with you about several areas of

interest that I think are common to all of us.

In the first place, in addressing ourselves to the statement: Oil and Gas: A Forward Look, I think the first question that comes to our mind particularly during these days when there is so much confusion abroad and in this national debate we are involved in about: are we really running out of natural gas, and are our supplies of oil diminishing to a point that we will almost any day be without them?

The mere definitions of the words "reserves" are confusing to the point that even those of us that live in this world sometimes have difficulty understanding what particular studies may mean. Now, I know that in this group there are many experts in this field, and I don't want to seem presumptuous in moving into an area that there is a lot of expertise here, but I think it is helpful if we could start off by saying, when we think about oil and gas, a forward look, about what we have to look forward to.

And I think most people that have studied the question would agree that today we have in being proved oil reserves of something in the order of thirty-five to thirty-seven billion (35 to 37,000,000,000) barrels. That we have immediately with us possible reserves of probably another hundred and thirty billion (130,000,000,000) barrels, which would bring us a total of reserves, that we can count

on as we sit here this morning, of something in the neighborhood of a hundred and sixty billion (160,000,000,000) barrels. Now, this is, I think, a conservative figure, and it comes out in terms of years, and we have a tendency these days to -- through the kind of shorthand we use in the media, to transfer reserves to years -- so that comes out somewhere -- something in the order of forty-five to fifty (45 to 50) years of supply of oil and gas presently on the shelves, or in being, so to speak.

Now, our natural gas situation comes out pretty much the same, based on current rates of production, current proved reserves, current views on immediate possible reserves, and we come out with supplies that are in the same range of years, somewhere between forty-five and fifty (45 and 50) years. So that would lead us to the conclusion, I think, that we need to get on with the development of our domestic supplies, or either we -- our other option is to depend more and more on exports that are forcing us into an incredibly bad deficit situation from a trade standpoint, and within another year or two, will exceed fifty (50%) per cent of our daily use.

It seems to me that the choice is an easy one, that we should get on with the development of our domestic resources, not only oil and gas, but all the other energy sources that we have. Now, as is indicated in the program

here, indicating the points that I might make, among those, and I think very aptly, is that the answer to our energy future are largely not technical questions. They are not really economic questions, but they are political questions. A moment ago we were asked about divestiture. I wish I could explain why divestiture is an issue, as keen an issue and as critical an issue as it is. I really can't do that, and believe me, I live very close to this.

Let's take vertical divestiture. That means that it's an integrated company that would have to be severed. Now, by all the standards that we have had historically, the tests we have levied and in testing whether or not an industry should be broken up, or divested, the first test has been concentration to the point that it was not in the public interest. That people could manipulate either supply, or market, or both, or consumption. But in the case of the oil and gas business, there is not a single company that controls as much as ten (10%) per cent of the retail gasoline market in the United States. That's not true in any other major segment of our economy. There is not that little concentration.

There is not a single company that has as much as ten (10%) per cent of their manufacturing capacity in this country -- refinement. There is not a single company that has as much as ten (10%) per cent of transportation,

or any other segment of this great energy industry. Nor is there one company that is the leader in any two segments. The leading marketer is not the leading producer, or the leading manufacturer, or -- and the same goes across. So that test fails. By any test we apply, there absolutely is no concentration to the point that it is against the public interest in the petroleum industry. This simply is not a fact, and every study that has been made shows it.

That makes it difficult to explain why it becomes such a real issue. Now, let's look at so-called horizontal divestiture. That is the question of whether or not a company could be able to be involved in any kind of energy source other than whatever its basic interests were. The company which happens to be in the oil business that has the biggest uranium base has less than one (1%) per cent of the total of oil production in this country. I find it difficult to understand how a person with less than one (1%) per cent of the total production could in any way rig the market. The total concentration of the oil companies in the coal business is less than twenty (20%) per cent of the total reserves. The oil company that has the largest stake in the coal business owns less than two (2%) per cent of the oil production in this country. Even if that group decided to go with the uranium group, they would have about -- not

quite two (2%) per cent of the total production, and I find even that kind of a combination -- I find it difficult to think of them rigging the other ninety-eight point (98.--) whatever it might be of the market.

So, if you ask me to explain why these are public issues in the critical sense that they are, I would have to say that it's really kind of a basic question, really, what we are talking about, of whether or not it is a matter of private ownership, ownership through stockholder, publically held companies, or whether or not it's the kind of view that holds that the central Government, some way, can better, through its regulatory arms, decide the course of business ventures, and that some way they have the sort of special oracle on what's in the public interest.

For instance, again, talking about vertical divestiture: there is no question but what a fragmentation of integrated oil companies in this country would have a price impact on the consumer that would be probably greater than anything that I know of, if we want dollar-a-gallon gasoline. The best way we can assure it from my view is to have vertical divestiture. And another thing that seems so obvious that you wonder why people don't understand it, that if you had vertical divestiture, you would probably end up with a greater concentration than you now have,

because the thirty (30) or forty (40) national marketing organizations that exist today could not exist standing alone, and I think it is a fair assumption to say that you would see a melting together of those to where they are -- within a very few years, like as in many other retail areas of our economy, you would see two (2) or three (3) giants, and the rest would have fallen by the wayside, or been taken over.

Now, another question that we worked on in this climate we live in -- a purely political decision -- is this whole matter of regulation. It's being hotly debated at the moment. It began in the mid '50's when the Supreme Court case that held the wellhead price of natural gas was subject to the jurisdiction of the Federal Power Commission. I think most people have studied the supply of natural gas and economic interactions of this control system since then -- I really don't know of any economists -- and you could fill this room with studies, maybe they have taken different routes, but inevitably they have reached the conclusion that the price of natural gas has been held so low that it has had the effect of draining off the supply, and that that, more than any other single cause has contributed to the kind of shortage of supply that we have today.

And yet, again, we have, unhappily, it looks

like, a majority, at least, of the people in Congress that view it absolutely essential, the continuation of Federal controls and the price mechanism of not only natural gas in the interstate market, but in the intrastate market, and not only natural gas now, but to continue the controls on crude oil.

Now, there again, I think it is important to understand what we are really talking about in this day when charge and countercharge is being made, and we hear so much about it. We are really talking about decontrol of gas that would be discovered in the future. We are also talking about the fact that nothing would happen to contracts in being, and the average length of those contracts is thirteen (13) years. So people that imply that in some way the industry is suggesting that there be immediate decontrol of everything, and that this would be some kind of a monumental swindle as far as the consumers were concerned, are guilty of one of two things: either they just haven't understood, or haven't investigated the problem, or either they are trying to deliberately mislead someone. Because the impact of all economic studies that I know have been made that have worked off of that kind of a base, which is the correct one, have indicated that the price impact at the consumer's level would probably not exceed seven (7%) per cent, and be more like five (5%),

four (4%) to five (5%). So I mention these questions simply because they are largely political questions. The outcome of which I have no way to predict, and I am sure none of you do. I suspect they are going to be around quite a while. It would be great if they could be resolved, but I think then we could get on with our really basic problem, and that is to develop our domestic reserves.

Now, if we had the reserves, at least for the next forty (40) or fifty (50) years, to maintain roughly the level of production we are today, and if we have to get on to them, certainly one of the most important questions or subquestions of this is: how do we work out the procedures, and how do we get to the multiple use and the development of the -- energy resources of the seven hundred and sixty million (760,000,000) acres of land that the Federal Government owns, and much of which is very promising from a production standpoint as far as energy is concerned.

And also, how do we get on with the development of the outer continental shelf, which is one of the great horizons that we can look to with hope to fill some of our energy gaps. We think there has to be -- just must be a public understanding of the fact that there can be a multiple use of these public lands, that we can develop the energy resources there, and in doing that, not inordinately

disturb the environment nor the recreational aspects of these great national treasures. Unless we are willing to do that, and unless we are willing to adopt the kinds of policies that will allow us to do it, then I think we must accept as a fact that we are going to be relying more and more, and more on fourteen ($14.00) dollar oil that comes from overseas. We cannot continue to close down and to close up, and take out of the area of development our public lands, whether they be on the continental shelf, or anywhere onshore, we cannot continue to prohibit, either by Administrative Decision or a legislative act, or so burden their development by administrative procedures that drag out over years, we cannot continue on that road, and we have been on it, and we are on it, despite what we hear to the contrary. The pending OCS Bill, would be an utter disaster as far as the development of the outer continental shelf is concerned, and when I say disaster, I want you to understand I am talking about as far as time is concerned. There is no way that that development could occur, or start to occur in less than a generation. It retards development, rather than encourage it, and this is the kind of policy that some way has to be changed. We have to have a new direction. I think we have to understand, even though I agree that most procedures that we have are Government, between the private sector and the

Government, are adversary procedures, and I don't have any great problem with that, but on the other hand, I think in the development of our energy resources, it is essential that we get rid of this present attitude that exists in the industry -- not just the oil and gas industry, but all industry -- has to be for some public reason excluded from any discussions of policy question. Because, these people, the people in the energy industry, is the greatest cadry of technicians that has ever been assembled in the world. They are people that are committed to the idea that they want to preserve the environment, and the recreation of our country. They are citizens and they enjoy it as much as anyone else. They have demonstrated that they could do that in great projects like the Alaska Pipeline, which was the largest public works project ever built by private enterprise, and it was done with great attention to all the environmental questions that arose in recreation. And they have demonstrated even further back in the development of areas off the Louisiana coast, like Avery Island, where they preserved the integrity of that environment simply by voluntary work.

This kind of understanding there must be at a public level, and at a governmental level, to continue to exclude the energy industries from this decision-making

process is precisely the same as if we were trying to run a hospital without doctors and nurses.

Thank you, very much.

(Applause.)

MR. EDWARDS: Thank you, Mr. Ikard. Are there any questions? A question here? Please identify yourself.

MR. RHODES: I am John Rhodes, Mining Engineer from the Bureau of Land Management in Albuquerque. I will preface my question with stating that being a mining engineer, I am moderately sympathetic to the mineral industry, but I am also a consumer, and there has been one question that I really can't answer myself, nor of anybody that has ever asked me, and it concerns the pricing of oil and gas. It seems like when you drive into a service station the only thing you see different is the color of the station, or the insignia, but yet the price on the pump, if it is a major station, is exactly the same, all over town. Now, I wonder if you could explain to the nation what is going on in this matter?

MR. IKARD: Well, the pricing of gasoline works no more differently than the pricing of hamburger in a free market, or any other commodity that you buy in -- en mass. I suspect that if you went around Albuquerque, and I don't know this -- of course, let me hurriedly say that presently the price of gasoline is very strictly controlled

by the Federal Government, though there is no -- I think everybody should understand that, but in a free market, that's one of the characteristics of it. It moves up and down, and around, and someone, thinking that they can, for usually -- quite frankly for a profit motivation -- decides that they can make money at a price lower than the set price, and this is nothing more or less than an auction. It happens when you go in and buy a suit of clothes, it happens when you buy groceries, it happens when you buy gasoline, it happens all across a free economy. The substitute for that is a -- some kind of a regulated system which we are now operating in the oil business, and I don't think that anything has happened so far that would indicate to me that it is doing nearly as good a job as the free system that we had.

Now, I admit with you, and I agree with you, if you would say to me, "Why do you have all those -- or did you have ten (10) years ago, those flags -- why did you give me those crazy glasses I had to throw away, and all that sort of thing, to buy gasoline? I would rather have a lower price than that gadgetry." But, thank goodness we are not having that now, and -- but the free market itself is naturally going to see an occasional break in price, and then everybody comes to that price, and it can work either way. That's what the system is all about, and

I think the simplicity of it makes it difficult to explain. It is exactly as you go to a livestock auction somewhere and out of that you get what certain kind of cattle are selling for, per hundred weight. And that's because the buyers there establish that market. And I think that's a better way to do it than the system we now have.

MR. EDWARDS: Next question.

MR. DICKINSON: My name is Arthur Dickinson, with Ada (phonetic) Resources in Houston. You made an opening comment concerning the reserve remaining in the United States of about thirty-seven billion (37,000,000,000) barrels, I believe. Then you indicated that in addition we had reserves of a potential, and I hope that you are saying that they're approximately totaling a hundred and sixty-billion (160,000,000,000) barrels, which was a forty-five (45) year supply. I would like a clarification on that in the sense that the difference between the thirty-seven and a hundred and sixty-two billion barrels -- of course, has to be found, is that correct?

MR. IKARD: Yeah. Let me -- every time I speak about reserves, as you well know, you get in trouble, because your definitions are always different. Now, I was speaking from memory, too. I now have the sheet in front of me, and I will give you exactly what I did mean. Fortunately, I was a little under, rather than over.

On the natural gas, crude reserves, as of December 31st, '74, which the last figures we have is '76 figures on oil we do have, and I will give you those:

Those are the AGA API figures, and that's two hundred and sixteen trillion (216,000,000,000,000) cubic feet. The estimated recoverable reserves -- now, that's the U.S.G.S. figure now -- is six eighty-six trillion 686,000,000,000,000) cubic feet. So we have the AGA API figure of -- and you know, in our case, the AGA API figures -- our figures are given arbitrarily for the last day of the calendar year, and they are built on the economics of the day and the technology in being, so in other words, at the prices prevalent, and with the technology that we had, we calculated our reserves to be two sixteen trillion (216,000,000,000,000) cubic feet.

Now, the U.S.G.S., as I say, says that they have -- they estimate our recoverable reserves to be the six eighty-six figure, which gives us a nine 0 two trillion (902,000,000,000,000) cubic feet, or forty-six (46) year supply. Now, on the oil side, that's crude oil and natural gas liquids, the crude reserves on the same day at -- by the same qualification and the technology as it existed at that moment and the economics of that moment, we had thirty-seven billion (37,000,000,000) barrels. U.S.G.S. figure on that estimated recoverable is a hundred and

twenty-seven billion (127,000,000,000), which gives us a total of a hundred and sixty-four billion (164,000,000,000) barrels, or about forty-six (46) year supply.

Now, our '76 figures, the 31st of December, '76 figures on oil, as I recall, and I am now speaking from memory, were about thirty-one billion (31,000,000,000), and these are reserves, too, that are ex-Alaska, so there would be a little difference. There would be more with the Alaskan figures in there. I wish I could be more explicit on this, but I do have a lot of backup information, but I don't have it with me.

MR. DICKINSON: Mr. Ikard, my question really deals with the effort that needs to be made in order to find this additional amount of gas.

MR. IKARD: Oh, I see.

MR. DICKINSON: Or oil, because we are talking about thirty-seven billion (37,000,000,000) barrels, which is really, if we don't find any more, not much of a supply.

MR. IKARD: That's nothing, really -- yes. Well, of course, that's the point, I think, that we have to -- that's the very basic form with which we have to look at some of these political questions I was talking about, that currently where the industry is restrained by -- one, by uncertainty of these political questions -- this oil is going to be much more expensive to find; and it is going to

be either offshore, or Alaska, or in some of the tertiary developments, or secondary. It is going to be much more expensive, and it is going to tax the ingenuity of everybody and without the hindrance of -- the uncertainties of a lot of these political problems we are faced with.

MR. EDWARDS: I am pleased to see we have a lady over here who wants to ask a question.

MRS. WRENT: Yes. My name is Mrs. Wrent (phonetic), and I represent one of the factors of the Sierra Club. And my question to you is: you stated that you want to get at the acreage that the American Government owns, which means that the American people own, and when you say you want to get at it, how much do you really feel that you're going to get out of this acreage, and in the process, how much damage do you -- what is the environmental impact of doing this? Is it really worth going to these wilderness areas and ruining the land in order to prospect and perhaps find oil or gas, and perhaps not find it, and in the process, ruin the habitats of some small animals.

MR. IKARD: Well, in the first place, I don't think -- you know -- what I was trying to say was, and what I hope I did say, obviously it wasn't understood, was the fact that we can develop these resources, and they can be developed, and let me say they are not for the oil companies, but developed for the people, because people

need warm houses, and the only way we can meet our environmental goals is by energy supplies. We can't do the things --

MRS. WRENT: How much are we getting out of it? I haven't heard any statements of facts and figures.

MR. IKARD: Well --

MRS. WRENT: What proof have you that it is there?

MR. IKARD: We have a lot of proof, and the best --

MRS. WRENT: Where? How? Give us some --

MR. IKARD: Well, for instance, we have a great deal of oil that we know is there off Santa Barbara that is unable to be produced on account of environmental restraints. We know that there is a great deal of oil in the overhang area of Idaho and Utah, and in that area, but we know that over fifty (50%) per cent of it is unavailable for exploratory work. We know -- we think we know, or at least all good geological information points to the fact that it -- that the Georges Banks area, the Baltimore Canyon, and other places on the continental shelf are extremely favorable, and that those resources can be developed without any damage to wildlife, to the environment, to the -- and I just wish --

MRS. WRENT: I hand to you the proof of the

Alaska Pipeline, because it has already damaged environment.

MR. IKARD: Well, that, I think, is contrary to most of the -- in fact, almost the unanimous view of the environmentalists that I talk to, and we have taken people up there, including very many of the -- several of the officials of the Sierra Club, and I have not heard any of those people say that they didn't consider that to be an excellent job, and that due consideration to the environment was paid.

MRS. WRENT: There was a leak in it, and it damaged the environment.

MR. EDWARDS: One more question. Ken?

MR. LINEFELD: Ken Linefeld (phonetic) with the Bureau of Land Management. I was wondering what relationship you saw the petroleum industry having to do with energy in this region, such as solar infusion, and what the petroleum industry is doing as far as long-term stability in marketing.

MR. IKARD: Well, I would suspect, outside of the Federal Government, which is certainly doing most in solar, I wouldn't suspect, I think I could say without any fear of contradiction, that the most active research in the solar field is being done by a petroleum company, and that has been going on for a long time. It hasn't just started recently. Also, there is all kinds of pioneer work

being done in geothermal and other kinds of activities that are alternate sources of energy that are being sponsored and financed and conducted by the petroleum companies.

MR. EDWARDS: O.K. Thank you, Mr. Ikard.

(Applause.)

MR. EDWARDS: We will adjourn now for lunch, and begin again at one thirty (1:30).

(Whereupon, the conference in the above entitled matter was adjourned for the lunch recess, to reconvene at the hour of one thirty (1:30) o'clock, the same day.)

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AFTERNOON SESSION

MR. EDWARDS: All right. Can we please come to order.

I noticed as I went out for lunch, there are still a large number of messages on the board out there that have not been picked up. I would appreciate it very much, and I am sure your offices would, if you would pick those up.

Our next speaker, Mr. Richard Tinsley, will talk about the financial and economic stimulus for mine developments. Mr. Tinsley is a Mineral Economist with Continental Bank, Chicago, Illinois, evaluating and structuring financing for mining projects and monitoring mining development worldwide. Mr. Tinsley previously worked as a Staff Economic Analyst for AMOCO Minerals, and as a Non-ferrous Commodities Specialist for Chrysler Corporation. He attended Hailybury School of Mines, Ontario, Canada, receiving a diploma as a Mining Technician in 1968. Graduated from Michigan Technological University of Houghton, Michigan, with a B.S. Degree in 1971, and received an M.S. Degree in Mining Engineering with a major in Mineral Economics from Columbia University, New York, in 1972. Mr. Tinsley.

(Applause.)

MR. TINSLEY: I wonder if you could dim the house lights, and turn on the projector, please? Thank you.

I must certainly congratulate the Bureau of Land Management on holding this sort of forum. They have certainly been able to gather together a very diverse set of speakers, and I think, a very diverse set of people to this meeting.

It is particularly ambitious when one considers that most of the discussion has been about their business.

The title of this discussion today is "The Financial and Economic Stimulus For Mine Developments". I would like to focus a little bit on the hard minerals industry. We have had a lot of oil and gas. I don't mean to exclude oil and gas, but I think the hard minerals business need their say.

I would like to also say that the opinions are my own, and do not necessarily reflect those of Continental Bank.

We have heard a lot of discussion about policies, mineral shortages, and I suppose the Government is in the enviable position of creating problems and then looking very well while they try to solve these problems. We have heard a lot about the complexities of the legal regime in which the mining industry is dealing. We are

looking at laws written by lawyers that have to be interpreted by lawyers. Mr. Martin, I would like to expand on a point made by Mr. Martin yesterday when he said that some people thought that policy was a series of unrelated actions, which later have to be interpreted to form a policy -- I am paraphrasing what he was saying -- I think that is certainly so when one considers the policy of the U.S. Government towards its legislation. We are now in a regime where legislation has to be interpreted after-the-fact.

And, talking about lawyers brings up a story that comes to mind immediately about the Saints having a fine time up in heaven. It happened to be Saint Patrick's Day. I hate to say it, but they were drinking green beer, and they were having quite a fine time.

Unfortunately, Saint Patrick stomped on the floor of heaven so hard that a piece came off the floor of heaven, came all the way down to earth, and son-of-a-gun but didn't it land in a wilderness area, and did an incredible amount of damage. It even killed, I am afraid to say, some endangered species, and the local BLM Director got very upset about this, and he said, "You know, we can't allow this sort of thing to go on. We are going to have to cool those Irishmen, particularly on Saint Patrick's Day." And he sent up somebody to God, and he said, "Look, you are

going to have to appear in court within seven (7) days. We know you can do everything in seven (7) days. But you are going to have to give compensation for this wilderness area, and furthermore, I am going to declare Irishmen as endangered species." And God took Saint Peter aside and he said, "Pete, will you go and do what is necessary to defend this action?" And Saint Peter was seen going to and fro around heaven and he seemed to be going more to and fro as the days went on. On the sixth day he came back to God, and he said, "Well, I think, God, we are going to have to forget about this bit about the Irishmen being endangered species. I think that is a lost cause." He said, "I -- you know, I just don't know what we are going to do, because, to tell you the truth, I can't find any lawyers up here with environmental experience."

(Laughter.)

"In fact, I can't find any lawyers up here at all."

(Laughter.)

I think the theme of this conference is -- we have heard it before -- "Changing Times". I think it is as appropriate to a discussion of U.S. land and minerals policy as it is to a discussion of the global energy-minerals situation. We have seen a lot of discussion, as

I introduced this talk, on policy mineral shortages. We perhaps forget that there is, in fact, a mining policy. The Mining And Minerals Policy Act of 1970 is, itself, largely forgotten.

The issues have been proliferated to such an extent that we are faced with conflicting and competing national goals. It is hard to realize that we, in fact, have a minerals policy.

When talking about policy, one should consider the Final Report of the National Commission on Materials Policy, which was presented in 1973, just about the same time as many shortages -- I should use the word "shortage" advisedly -- I think Mr. Strauss, who follows me, has amply illustrated that by saying that a market that is fifty (50#) pounds short, even though it is a fifty millon (50,000,000) pound market, all of a sudden everybody feels as if they are fifty (50#) pounds short. So, shortages have a price connotation.

But, the point is that the Commission's report has, itself, also largely been forgotten. There were about a hundred and ninety (190) recommendations in that report. These mineral shortages that we have been talking about are perhaps one reason why the mining industry should feel at least some heart. There were a great number of Congressional hearings during that period, and at least

the mining industry got listened-to during this time, and it was even asked for advice on what to do to combat shortages.

We tend to forget that without the hard minerals industry there would be no discussion today, certainly not from me, because I wouldn't have my glasses to read this talk, you would not be sitting in your chairs because this building wouldn't exist. And, heaven forbid, there may even be no need for the Bureau of Land Management.

(Laughter.)

We forget the role of minerals in our economy. I think we should -- anyone who feels they have a weight problem should take heart with this slide -- in 1976, the minerals industry extracted twenty (20) tons of material per capita -- that's per U.S. citizen. Granted, a lot of that was items such as sand and gravel, construction materials, but there were also significant amounts of the hard mineral-type commodities, iron and steel, aluminum, copper, lead, et cetera, and three (3) tons of coal per capita. Now, perhaps I should put that in Congressional perspective, although after listening to Mr. Ratiner this morning, I wonder whether I should bother -- this twenty (20) tons translates to forty-four (44) tons per registered voter.

(Laughter.)

The mining industry thought its argument didn't carry any weight. I would like to proceed in this talk through basically three (3) main areas. I think the industry needs to dispell some commonly-held fallacies. The industry perceives that it has difficulties with the interventionists, and there is the potential for a minerals crisis in the 1980's. And, as we go through these fallacies, I will try to illustrate them with some support slides. The first major fallacy is that the mining industry is a high-profit empire. It is an imperial industry which churns out minerals at great profit and destroys the environment in the process.

We tend not to realize that the industry is actually comprised of thousands of companies. There are about four and a half thousand (4,500) U.S. mining companies, and there are some six thousand (6,000) U.S. coal operations. Our mineral-rich neighbor Canada has about thirty-five hundred (3,500) companies -- that is, companies registered on stock exchanges that are traded publicly, public companies, and less than one (1%) per cent of them pay dividends. If we look at the profitability, the industry's profitability in 1976 was just over a half that for the twelve hundred (1,200) largest companies. This isn't an anomaly that occurred in 1976. This has been generally true for the last decade or so, except, I should

say, during the period of very high prices for certain companies in the '73-'74 period.

This is hardly a superlative profit performance, as the many copper producers in the Southwest area could attest to today.

The second major fallacy I would like to touch on concerns idle reserves. The accusation that the industry is sitting on reserves betting on the come when these reserves run out in twenty (20) or thirty (30) years. I think Mr. Ikard certainly expanded on some of that this morning when he said and felt, and discussed some statistics showing about forty-five (45) to fifty (50) for oil and gas. The U.S. has about four hundred (400) years of coal, again using this year's figure as the reserves to current production. But not all of this is available to the industry. For example, about half of Montana's stripable coal of the Fort Union Formation has been placed in a no-leasing category. But we should take heart about reserves. If you take it from A to Z, the world's aluminum ore bulk site, there are about two hundred and forty (240) years. For zinc there is about twenty-four (24) years. But I think zinc is a good metal to illustrate the problem of reserves. There have been twenty-four (24) years of reserves for the last twenty-four (24) years. There is an operation up in Canada that comes to mind immediately, and it has had five

(5) years for over the last twenty (20) years. Zinc is hard to prove up reserves.

I think we should also be cognizant of the fact that the mining industry uses a very small amount of land area, in fact, you will behard-pressed to see it on this slide. The total land use is point three (.3%) per cent of the two point three billion (2.3) acres total in the United States. In fact, in the Alaska and eleven (11) Western States area, where most of the Federal land is, the mining occupancy is under point one (.1%) per cent. Whereas, if you turn to the upper right hand side of this vu-graph (phonetic), the idle cropland is twenty (20) times as much, and it's two (2%) per cent, and this particular chart doesn't properly represent the amount of reclamation that has been done.

I think we should recognize that it is standard practice, if not simple economics, for any industry to have more projects on the drawing board than can be realized within the planning time frame. And, I think this is especially true for the debt-laden mining industry.

The third fallacy I would like to address is the one that you can mine anywhere. That you can set up an oil well outside of this beautiful city of Albuquerque and you can get the right amount of copper from the little mine just outside the city limits. I think we should

realize that prospectors and explorationists do not simply pick up a land site satellite photograph and stick a pin in it to find a mine. The industry is limited by the geological constraints of where the reserve is. This is a little bit faint, but this does provide some information on where some of the energy minerals reside in the United States.

The same mountain-building forces that build wilderness areas also build metal deposits. Of the two point three (2.3) billion acres in the United States, about thirty-three (33%) per cent is federal land, and twenty (20%) per cent of the total is under BLM management of some form. Almost half of the federal land is in Alaska, with most of the rest in the eleven (11) Western States. It is no coincidence of geology that these eleven (11) states, plus Alaska, account for a majority of this country's production of metals. Separate, but nonetheless related geological conditions will make these states increasingly important sources of fertilizer minerals, and energy minerals, especially coal.

The approximately four and a half thousand (4,500) U.S. mining companies may give you the appearance that they act as a single entity, and they may give you the impression that they can summon reserves and production at will. It's nothing much more than a process, or a

manufacturing industry. But I think we should realize that there are great differences, particularly locational and also some of the nature of the mineral economics of the mine, the depleting aspect.

As distasteful as it may sound, we are witnessing some of the early warning signals of a minerals crisis in the 1980's. The most obvious problem, of course, is the lack of investment in productive plant capacity. We have -- we are all, of course, aware that we have gone through a very steep recession, but this lack of investment became very obvious very early in this recession, and it has not been corrected. One of the most disturbing parts of it is that what little investment there is, is in equipment, and not in productive plant capacity.

Much of the reluctance to invest depends, of course, on uncertainties, particularly those surrounding Government policies. The lack of confidence becomes a self-fulfilling prophecy, as the hesitancy to invest causes economic weakness which justifies further hesitancy. And, I would like to immediately say that the lack of investment is not the sole domain of the mining industry. It is pervasive within the U.S. economy. But the mining industry is peculiarly sensitive to the peaks and troughs of the economic cycle, due to such factors as the short-run inelasticity of production, and the very long lead time

necessary to get a new mine into production.

I would like to expand a little bit on Mr. Corn's comments that we needed six (6) years for the industry to prove itself. I think that may be the case for the oil and gas business, but it would be very difficult for the hard minerals business. The lead time for a new mining project is now in the order of seven (7) to eight (8) years, and with the latter number being the case on an area which is under a Federal lease. We heard from Mr. Vickers this morning about the problem of cost escalation, and I think the best way to expand on that is to give the figures on the Kaiparowits Coal-Fired Power Generation Complex which he talked about. In 1965, a five thousand (5,000) megawatts plant was budgeted at five hundred million ($500,000,000.00). By the time the project was cancelled in 1976, a scaled-down three thousand (3,000) megawatt plant had a price tag of three point five (3.5) billion, which is a six-fold increase. And I think Kaiparowits is a good example of where procedural delays and litigation are the main causes of delay, and the mining industry is facing these delays which are causing devastating cost escalation.

We talked about the reluctance to invest: the long lead time of seven (7) years means that the mining industry is looking just about two (2) business cycles

ahead to the time when its expected plant could come onstream, and I will expand on this, particularly in the light of the difficulties in forecasting. We are seeing wider and wider cycles, wider swings in the business cycle, which is reflected in wider swings in the metals crisis cycle, and it seems that these are virtually guaranteed by the delay-type of escalation and the poor level of investment. I think the -- this is not a very up-to-date chart on the price of copper, it should have been a little lower, on the right hand end -- but it is very difficult now to -- it has always been difficult, one must admit, but there are now some structural reasons why it is increasingly difficult to forecast, and there is insufficient advance notice for producers to initiate, or re-evaluate grassroots, or in-pipeline projects. We are also seeing increasing Government control of developing country's minerals output, and this has led to a virtual disappearance of any across-the-board attempts to regulate short-term supply relative to demand.

We should also be cognizant of the fact that the lesser developed countries got a taste for high minerals prices, largely due to the distortions in metals prices caused by the Government's wage and price controls. These increases in prices naturally spurred discussions about cartels. We all are familiar with OPEC, but there was

increased discussion about copper, iron ore, mercury, balsite, just to mention a few of them.

Notably, these are in minerals for which the U.S. has some structural deficiency, but rather than adopt an incentive program to strengthen the U.S. mining industry, correct the fast-growing imbalance of minerals trade, or lessen dependency on certain critical materials, or at least provide some buffer capability, some buffer stockpiles, we see the United States putting far more effort into cartel appeasement or promotion, and I think that some of the discussion by Leigh Ratiner, this morning, are good examples of that. This is the case where the U.S. is paying the LDC's to take it away, to enter into competition with U.S.-led groups, and insuring a hand-over of the technology in ocean mining.

But perhaps we need to come back, step back a bit and take a look at some of the facts. For twenty-one (21) metals studied by the British North America Committee, the present production and reserves of these outside of the Communist countries, that is, is about evenly shared between four (4) developed countries: that's the United States, Canada, Australia and South Africa, and all of the other developing countries combined. I am not saying that this precludes the potential for cartels. But, rather that the developed nations should not feel so inferior

in their capability to produce hard minerals.

The difficulties in forecasting and planning worldwide mineral developments, however, has led to a state which, and I will quote Mr. Rommel Fraser, who is Chairman of Hudson Bay Mining and Smelting,

that the situation is "so near to a state of anarchy that it is very difficult to find any guidelines." He is talking from the mining company's viewpoint. And this is one of the reasons why interest in mining investment is turning so markedly to the United States. We are seeing a growing number of foreign companies, such as Belgium's Union Miniere (phonetic), Germany's Urangesells Chaft (phonetic), Britain's Rio Tinto Zinc, Japan's Dowa, Mitsui, Mitsubishi, Canada's Cominco and Denison Mines entering the U.S. metal mining industry, and a growing number of European steel companies such as France's Usinor (phonetic), Luxembourg's Arbed (phonetic), and Austria's Voest-Alpine (phonetic), entering the U.S. coal business.

Part of the reason is the perceived political stability, the strong minerals potential, and the presence of substantial intrastructure. As you can see from this slide, there are substantial coal reserves in other countries, but perceived or -- and I should say also that this is -- this particular slide is for coking coal -- that we should be aware that perhaps coal isn't coal. There

are a number of coals: coking coal and metallurgical coal is generally used in the steel alloying industry, steam coal obviously for utilities. This is just coking coal. Perceived or real, political instability in the three other resource-rich developed countries, such as the actions by the former Socialist Government in British Columbia in Canada, the former Labor Government in Australia, and of course, the problems surrounding South Africa. These seem to encourage these positive attitudes to the United States, which is somewhat baffling in the light of wide-spread interventionism and environmental constraints on U.S. mining projects.

But perhaps again, if we step back, we can see that the investment policy of nations other than the United States is generally superior to that in the United States. An excellent study by Coopers and Lybrand used return on investment to rank country investment policies in mining developments. These were for four (4) basic metals. Out of twenty-eight (28) opportunities for the highest return, France won, if you will, thirteen (13) times, followed by Canada, Germany, and the United Kingdom. Out of twenty-eight (28) opportunities to have the second highest rate of return, again this is on a model mine basis, this is, if you will, a simulation study France again was top with eight (8), Japan five (5), United Kingdom

four (4) and the U.S., I think, a rather miserable three (3) times out of twenty-eight (28) is the second highest return on investment.

I think this type of difficulty for the U.S. mining industry relative to the international mining industry should be borne in mind in discussions of investment policy, such as the depletion allowance. The energy crisis, really an energy fuels crisis, has been widely discussed here. We know it is largely a crisis with its roots in Government actions. It is an imbalance between constraints and needs, which is the essence of the present U.S. energy predicament, and this also carries over into the other minerals.

If you will bear with me, I would like to quote from the National Commission on Materials' Policy, Final Report: "It is crucially important to develop progrms in concordance, instead of conflict, to provide materials and energy, and to protect the environment. Economic activity, no less than environmental quality, is needed to meet the objectives of the nation as a whole."

I would like to move into some of the areas which I realize is really Bureau of Land Management territory, particularly the minerals evaluation aspect of land withdrawals. And why we need a procedure to declassify, to withdraw the withdrawals, if you will.

Hopefully, this will be one type of policy that would introduce some stability into the legal regime.

The Federal Land Management Policy Act of 1976 does, indeed, provide for a minerals evaluation process. However, that process will not be over soon, it will be a painfully long one. I think it should also be viewed in the perspective of the fact that we have no inventory of what we have withdrawn, at least no comprehensive inventory. There are so many cases of past abuse that it is rather disheartening when one looks at this. There is one example where the BLM stated that land in a particular area had no value for locatable, leasable, or saleable minerals, while part of that area was already leased and producing oil and gas.

Beyond some of these past errors and negligence is a thick layer of unfactual and unrealistic rhetoric on the environmental impact of mining, and I would like to quote from the report on the task force on the availability of Federally-owned mineral lands. Again, if you will bear with me, I think it will speak for itself.

For example, in an environmental assessment of the impact of mining within a National Recreation Area, the analysis on which the lease rejection was based states, "It must be assumed when renewing this lease that a full mining operation will result." The report contains seven

(7) pages of descriptions of species and adverse impacts in the area of this lease. No mineral assessment, or economic analysis of the mineral resource potential accompanies the report. Neither is the incompatibility of mining with recreation, wildlife or grazing established by factual analysis. The report goes on to say, "It would be difficult, at best, to adequately minimize the physical impacts to the area," although no mining plan, or discussion of mining plans accompany the report.

Further, there are categorical statements such as,."The natural erosion process could be greatly altered, and accelerated, by all types of surface disturbance." Yet, in the preceeding page, the following statement is made, "There is extensive public recreational use in the surrounding area. One of the roads is heavily used by primitive campers and recreation vehicle users." And it goes on to discuss how the noise from mining, et cetera, will reduce the food supply to the affected species.

This -- I continue from this quotation from that report, "This reduction in the available food supply could contribute to the possible elimination of seven (7) threatened or endangered raptors found in this National Recreation Area." The recreation area includes one million nine hundred and thirty-six thousand (1,936,000) acres, while the lease covers three hundred and twenty (320) acres.

I think these actions are particularly hard to swallow when the government finances the interventionists, but cries foul when the mining industry tries to voice its opinion. I think the solution is rather simple. We must allow reasonable and carefully regulated access to federal lands to insure their proper evaluation by prospectors and explorationists. In areas where mineralization is found, we should have an effective mechanism to re-evaluate the land use and provide for a re-opening of the area by declassifying or withdrawing the withdrawal.

The mining industry of today, and we tend to put a lot of the sins of the past mining industry on the one of today -- I am talking about the one that exists at the moment -- I think it has proven that it can work with reasonable and stable guidelines, and it fully recognizes its environmental responsibilities. Consider the fact that strip mined land which could typically cost two hundred ($200.00) dollars an acre to acquire, is now being reclaimed at a cost of three thousand ($3,000.00) dollars an acre.

the vast majority of instances to a state superior to the original land's usefulness. I think it is time to include strip mining reclamation in the Gross National Product.

This particular slide is quite useful. All of the colored area is that under federal land control. Two-thirds (2/3) of federal land is closed or restricted for access to the mining industry, and as you can see, Alaska and the eleven (11) Western States are the predominant areas for withdrawals.

I think it is time for the legislators and the environmentalists to back off the interventionist media issues, and to show a statesman-like attitude to the question of minerals development and land use, especially on federal acreage. And I would hope that this is not on a piecemeal basis, but rather that at least some broad policy guidelines be established up front. There is little need to trot out the litany of mining industry woes for this distinguished audience. We have discussed the escalation of costs, the wider swings in the minerals availability price cycles, the increasing focus of the industry to raising capital since its debt burden continues to rise.

We have seen a temporary increase in corporate liquidity, which was generally a defensive posture, but I see from yesterday's Wall Street Journal that as expected, that temporary liquidity increase is now on the decline.

Since the topic of this paper was something about the financial and economic stimulus, I thought I had

better at least include some financial requirements.

The total requirements from this table on an annual basis in billion 1976 dollars is fourteen billion ($14,000,000,000.00) for the hard minerals industry, I should stress. The leading categories are aluminum, copper, iron ore and coal. These particular projections assume some replacement of capacity that becomes obsolete or mines that become depleted.

If we focus in on the capital requirements for coal, again on an annual basis, million 1976 dollars, this particular estimate would show that eastern coal, and that's both the metallurgical and steam coal, will require something like seven hundred million (700,000,000) per year with western coal at two hundred and fifty million (250,000,000).

I would like to conclude by saying, perhaps reinforcing the idea that the mining industry is not a homogeneous hole which can simply turn off and turn on the spigot of production and development at will. It is a risky, depleting, capital intense business with long lead times for development. Furthermore, it is not established anywhere, at will, but must overcome substantial location problems, the laws of geology, a mine is where you find it, not where you put it. And these problems are aggravated by the withdrawal syndrome of federal land use

policy. We must work to insure a sound domestic minerals industry and not weaken its position compared to the rest of the world.

The creation of policy guidelines in and of themselves will provide most of the impetus to insure a competitive industry, and encourage investment. To not establish policy guidelines within one or two years, will to my mind, insure a minerals crisis probably by the middle 1980's.

Thank you for your attention.

(Applause.)

MR. EDWARDS: Thank you, Mr. Tinsley. Are there any questions? Maybe we could have the house lights turned up now. Question right here. Identify yourself and who you represent.

MR. LUDWIG: My name is Gene Ludwig, and I'm from Iron River, Michigan. A number of us who are interested in taxation as it relates to mining are quite concerned about some of the trends we see in the Midwest, and I suppose they are happening in the Farwest and Southwest, too, and this is the fact that there is no way that a mining company can move a deposit from one state to another where taxation policy varies so greatly. Do you have anything to offer in the way of guidelines concerning taxation policies at the State level which very often

determine the economic viability of the deposits?

MR. TINSLEY: I think there is perhaps a classical example in this area if one examines Canada, and the shifting in the taxation policies between the Provinces and the federal government. During the British Columbia Government there was a super-royalty which had a mining company ending up with -- I think it paid out a hundred and four (104%) per cent of its income to the Province. I think this issue was also brought up this morning in terms of, since the minerals are coming from the state land, or federal land, that the industry somehow should kick in with its share of royalties, et cetera. I think this is an issue which I, as a banker, cannot address. It is one that the government must do so, and I think it is one of the issues that should be included in any policy assessment.

In general, there is little awareness of the impact of taxation on the development of minerals. You mentioned that you are from Minnesota, I think -- where they had a tonnage tax -- that generally means that production will be deferred. In the case of the Wisconsin Progressive Taxation Bill which was only recently passed, I think, one or two months ago, that would almost surely defer any development, not just production.

In any guidelines that are established for

Federal policy, I think there should be a statement on the tax treatment of the state royalties, vis a vis the federal income tax, and this should be applied on a consistent basis. Coal is a good example, and I am sure there are people far more expert in this area, in this room today, than I am, but the variability in taxation is tremendous. We should have some guidelines on how to treat it.

MR. EDWARDS: All right. Is there any other questions? Yes?

MR. GEEHAN: I'm Pat Geehan, with BLM. You mentioned a seven (7) to eight (8) year lead time in starting a mine -- from what starting point is that calculation made?

MR. TINSLEY: That is -- oh, by the way, could you state your name for the record?

MR. GEEHAN: Pat Geehan.

MR. TINSLEY: Oh, yes. That was G-E-E-H-A-N?

MR. GEEHAN: Right.

(Laughter.)

MR. TINSLEY: I think we had trouble with that before. That lead time is, one could say, after the Board of Directors have given the mine -- the mining division a "go" decision. This does not include a substantial amount of time spent on exploration. One could

say, I think there has been a study produced recently for U.S. copper deposits, and I think the total lead time from discovery to production was something like seventeen (17) years. You could spend easily five (5) to eight (8) years on exploration, one (1) to two (2) years on analysis, and perhaps one (1) year with your Board of Directors. Or the management committee, if you will, so that's right from the decision that we want to have this properly go.

I would also point out that that lead time is lengthening as the years go on.

MR. GEEHAN: Thank you.

MR. EDWARDS: Any other questions? Thank you, very much.

MR. TINSLEY: Thank you.

(Applause.)

MR. EDWARDS: Our next speaker will speak on Mineral Stockpiles -- National and International. Mr. Simon D. Strauss, and we have a correction in the program. The American Smelting and Refining Company, Incorporated has now been changed to ASARCO, Incorporated, to update you.

Mr. Simon D. Strauss is Executive Vice President of ASARCO, Incorporated, New York. In March, 1941 he was appointed Assistant to the Deputy Loan Administrator, and Head of the Reconstruction Finance Corporation, wartime

activities, in Washington, and was subsequently made Assistant Vice President and later Vice President and Director of Metals Reserve Company, a government corporation that handles procurement of strategic metals and minerals during World War II.

In January, 1946, he joined the sales department of ASARCO, Incorporated, appointed Sales Manager January, 1947, and elected Vice President in April, 1949. Elected a Director in February, 1953 and elected Executive Vice President in April of 1971, and elected Vice Chairman in April of 1977. He attended City College of New York. I present to you now Mr. Simon D. Strauss.

(Applause.)

MR. STRAUSS: Thank you, very much. I am pleased to be with you, particularly since the weather here is noticeably better than it is in New York.

I only arrived this morning, and I have been very interested in the discussions that have taken place.

I am sorry to be just one more in the list of your speakers who are complaining about the government. As the brief biographical note that your chairman read indicates to you, I am a retired bureaucrat, and I do think I can look at these problems from the perspective of both points of view.

The theme of this meeting is "Changing Times".

Nowhere is the change more evident than in the way the national security stockpile has fared over the thirty-one (31) years of its existence. Actually, the idea of having stockpiles of strategic and critical materials resulted from experience that the U.S. had during the first World War. For the first time, there was a global conflict which shut off access to many important materials. Bernard Baruch, who later on established his office on a bench in Lafayette Park in Washington was the Director of the War Industries Board during the first World War, and he gave a great deal of attention to this problem of materials stock and supply.

One of his key assistants was a professor of Geology from Wisconsin University, Doctor C.K. Leith. Immediately following the end of the war, and up until 1940, Doctor Leith, with a concentrated intensity which I must say was admirable, spent all of his spare time, and working hours, lecturing, pleading, cajoling with the Administration, with the Congress and with the public on the need for establishing reserves of strategic and critical materials, particularly those commodities which are largely imported in the United States. He centered on things like rubber, tin, chromite, manganese, where domestic production was negligible.

Well, Doctor Leith, because of his academic

standing and his courtly demeanor received very courteous attention, but nothing was done until 1940. Then, when France fell, panic set in. The Congress decided that maybe Doctor Leith had been right, and they voted a reasonably modest appropriation for the accumulation of some of these materials that he was interested in. The purchasing to be done by the Treasury Department.

Well, the Treasury Department is very good at printing money, issuing coins, collecting taxes, and doing a lot of other things, but they did not prove terribly competent in purchasing materials, It was a slow process, and by the fall of that year, with Great Britain in grave danger, Mr. Roosevelt, our then-President decided we needed a more comprehensive program and he had the Reconstruction Finance Corporation set up for subsidiary companies. Metals reserves, rubber reserves, defense supplies and defense plants, and the whole idea, the concept of setting up these subsidiaries was to proceed in a corporate way to cope with the problem of assuring supplies and materials. We weren't in the war yet, but it seemed increasingly possible that we might be in the war, and these organizations did start active in the fall of 1940. I joined them in the spring of '41.

Well, in December, we had Pearl Harbor, and that shifted attention from building up stockpiles to the

more immediate task of providing the raw materials for the war machine. The list of critical materials was greatly expanded. Eventually it reached a total of ninety-three (93) different materials, of which seventy-six (76) were minerals. Metals Reserve Company bought all of these seventy-six (76) materials. The import trade of the United States was placed in the hands of these government corporations because it was recognized that under wartime conditions, if the trade was handled through private companies, the private companies would bid against each other, and the inflationary effects would be very severe, so Metals Reserve bought all the metals and minerals that came into the country during the war, and, as you can imagine, none of us knew exactly when the war was going to end, and good management, when you are in that kind of a situation, involves your having, if anything, too much rather than too little.

So, when the war did end in December -- in August of 1945, we had very substantial accumulations of many of these materials, and we had contracts to continue to receive some of these materials.

One lesson that I think the war clearly taught all of those who were involved in insuring the adequacy of supplies of materials for the War Machine was, that in assuring that adequate supply, because we had not had a

stockpile of any consequence prior to entry into the war, we had to do some things which actually diverted from the war effort. We diverted manpower. Every copper miner in the country received an automatic deferrment of military service. Now, these fellows running trucks and bulldozers and shovels had precisely the skills that the Army engineers, or the Navy CB's could have used very well in building the airports, the landing strips, the harbor facilities, the barracks and all the other construction jobs that the Army and Navy had to do. Yet, here was a cavalry of trained people who were off-limits to the military during the war, because it was important for them to maintain a high rate of copper production. In the same way an enormous amount of energy had to go into the production of the materials, particularly, of course, of aluminum, and most of the new hydropower that was brought onstream during the war years was used for aluminum production. It could have been used -- could have been available for other purposes if we had had some stockpiles of aluminum.

Scarce equipment -- in order to give up the mining effort during the war years, we needed rock drills, bulldozers, trucks, compressors, pumps -- all things which the military people needed also, and we impinged on the supply of these materials to the military because we had

to produce the metals. Had we had a stockpile, fewer of these items would have been needed by the mining industry during the war, and transportation: this was perhaps the classic example of how the need to insure adequate supplies during wartime, absent the presence of the stockpiles, was complicated.

During the year 1942, one-quarter of all the ships engaged in the bauxite trade, bringing bauxite to the gulf ports from Surinan and British Guiana were sunk by submarine action in the Caribbean. That was merchant tonnage which was badly needed to transport war supplies overseas. So when the war ended, it was not at all a strange thing that the public, as a whole, recognized that having stockpiles of strategic materials was more than just insuring the supply of strategic materials, it also meant that in an emergency we would not have to divert manpower, energy, transportation, scarce equipment away from the military effort to the extent that we had had to do it during World War II.

So, Congress passed the bill in 1946 with scarcely a dissent. If there was any comment at all, it was from the mining industry, that said, "Well, now, what are you going to do with these big stockpiles of materials? Are they going to come back to plague us at some future date?" To use the expression used by the Chairman of the

Armed Services Committee of the United States Senate, when the bill was passed, he said, "We are going to lock the doors on this stockpile, and we will throw away the key." In other words, the industry was being assured that these reserves would be held inviolate except for a genuine national emergency.

Now, the responsibility for deciding which materials should be in the stockpile, and how much of each of the materials was put in the hands of the administrative agencies. The Congress did not spell out what materials, and, in fact, from 1946 until 1962, this was Classified Information. I suppose the CIA probably knew, or maybe even the FBI, but the public, as a whole, didn't know. Certainly the producers and consumers did not know what the stockpile objectives were, or how much of the materials had been acquired. More than that, the government agencies that drew up these targets were very careful not to involve us in any conflicts of interest, or by any chance to have their decisions ruined by getting expert advice. So, they never spoke to us. We had no opportunity -- they would call us up when they had made up their minds what they were going to buy, and how much. They would call us up and say, "Do you have any spare copper for the stockpile?" And at times, they twisted our arms and said, "Well, it's more important that we get copper for the stockpile than you get

it to be converted into brass to make bird cages. I don't know why, but for some reason the military have a very low opinion of the essentiality of bird cages, and this is always the first item that is eliminated from production when there is a shortage.

So, here we were, unaware of how much was being stockpiled, except each of us knew how much we were individually selling, but most of the buying was being done abroad unaware of what the eventual goals were. Then in 1962, John F. Kennedy looked at the stockpile situation and decided there was too much stuff in the stockpile. His immediate predecessor, as you may remember, was of a different political persuasion, and Mr. Kennedy convinced himself that the stockpile goals had been set high as a result of pressure from the mining industry to sell a lot of surplus materials to the government and in some way the government had been taken advantage of, and he arranged for an investigation under the Chairmanship of Senator Stuart Symington. That investigation lasted more than two (2) years. And during the course of that investigation, for the first time, stockpile objectives became a matter of public record. Not only the objectives, but how much we had on hand.

As far as I am aware, Senator Symington's inquiry which went into the minutia of many of the contracts

that the government had made, never brought up a single provable case of collusive action between corrupt government officials and corrupt private -- or corrupting private corporate people. The final consequence of his investigation was simply a recommendation that the stockpile objectives should be reduced, and in fact they were reduced.

The changes in stockpile objectives have been very frequent since 1963, following this raising of this question by Mr. Kennedy and then the investigation by Senator Symington, just to give you an example, and I am going to, at this point, quote only one: there have been ten (10) different stockpile objectives for copper. Now, copper is considered such a basic material in wartime that it was one of three (3) materials on which the whole war production program of rationing and allocation was based. The three (3) materials were steel, copper and aluminum.

So, the maximum stockpile objectives for copper was set at three and a half million (3 1/2,000,000) tons. That was the highest of the ten (10) different goals. The lowest was zero, and like the teacher said to the little boy who complained about being given a zero, he said he didn't think he deserved it. The teacher said, "I don't think you deserve it, either, but I can't give you a lower mark than zero." In the same way, there is no way for them

to set the objective for copper less than zero. So it has varied between these two.

The interesting thing is, that the first objective for copper we now learn, the one set in 1946, was one million two hundred and fifty thousand (1,250,000,000) tons. The zero -- the maximum was set in August, '54 at three and a half (3 1/2) million tons, the zero objective was established in the spring of '73 at a time when Mr. Nixon decided that future wars would not last longer than a year, and that we could readily increase production. Our previous speaker told you how long it takes to expand production, but Mr. Nixon apparently had some different formula, because he said if the war lasted more than a year, we could easily expand production to compensate for it. And furthermore, he was upset about inflation, and he wanted to dispose of the remaining copper in the stockpile in order to hold down prices, so that was the time of the zero objectives. The spring of '73.

In October of '76, under Mr. Ford's direction, a new set of stockpile objectives was established, and in the case of copper it was one million two hundred and ninety-nine thousand (1,299,000) tons, just forty-nine thousand (49,000) tons different from the original objectives, but in the meanwhile, we had been as high as three and a half (3 1/2) million, and as low as zero.

Comparable changes have been made for most other major stockpiled materials. The American Mining Congress has issued an analysis of stockpile changes for the fifteen (15) items that represent the biggest dollar investment by the government and if any of you are interested, you can readily obtain that from the Mining Congress.

Now, of course, it's true that perceptions of security requirements for strategic materials are bound to change from time-to-time. People responsible for the military protection of the country have to anticipate the developments in the nature of warfare, the kind of tools they are going to use, the theaters where they are going to fight, the likelihood of our having access to imported sources, how long the conflict is going to last. All of these are things on which businessmen probably should not express an opinion. But it is not entirely out of place for a businessman to suggest that all of these are matters of assumption. Nobody really knows the answers to this until you're in the war, and then it's too late.

So, those of us who are concerned with the provision of the basic raw materials in which both the security and the economy of the country depend, believe that regardless of the nature, duration, or location of future military activities, the important thing is a constant flow

of basic raw materials in the event that our security is threatened, and as I say, the experience in World War II showed clearly that it was just more than having the flow of the materials, because perhaps you could produce more materials under a head of steam in wartime, but to produce that, you would have to give up manpower, energy, transportation and scarce materials.

Another point that the mining industry feels is valid is that since the bulk of the stockpiles is in minerals, these are exhaustible natural resources. They do not deterioriate. Having a stockpile of materials above-ground is, in a way, better than having a reserve of materials underground. Inflation always seems almost certain to enhance the value of the stockpiles from time-to-time. When President Kennedy complained about the stockpiles being too big, at then current prices, the value of the materials in the stockpile was about eight billion ($8,000,000,000.00) dollars. The aggregate total of sales of stockpiled materials that have been made since President Kennedy made that complaint is over seven billion ($7,000,000,000.00) dollars. The value of the materials remaining in the stockpile is eight billion ($8,000,000,00.00) dollars. In other words, inflation has taken care of the sales, in terms of dollar value, we have as much on hand as we ever had.

Now, under the law, the Congress has to approve of disposals. They are not consulted as to how much to buy, except in the matter of voting the appropriations, but the appropriations requests do not contain the detail, they are not consulted as to how much to buy, but material can't be sold without their approval.

Since 1962, Congress has been asked by Kennedy, Johnson, Nixon and Ford at various times to approve disposals of materials that are declared excess. Well, you can create an excess by reducing the stockpile objective, if you have a million (1,000,000) tons of copper on hand, and you want to sell a little copper, you go through some magic incantations and you decide that you only need five hundred thousand (500,000) tons in the stockpile, You tell the Congress that. You assure them that that is enough, then the Congress gives you authority to sell the five hundred thousand (500,000).

Each time that one of these bills has come before the House or the Senate committees involved, representatives of the government agencies have come on the stand to -- appeared before the committees to witness to the fact that the material really isn't needed. They have studied it carefully and it should be sold in order to reduce the government investment.

Let me cite three (3) examples of such sales. At the end of 1963, when the Symington investigation was still on, the stockpile actually held -- I am not talking objectives now, but actual amounts on hand, it actually held one million nine hundred and eighty thousand (1,980,000) tons of aluminum, one million one hundred and twenty-two thousand (1,122,000) tons of copper, two hundred and twenty-eight thousand (228,000) tons of nickel. Messrs, Kennedy, Johnson and Nixon said that we didn't need that much, and eventually they said we didn't need any. As a result, Congress was asked to approve the disposal and all of it was sold. As of now there is no aluminum, no copper and no nickel in the stockpiles.

I have already told you that copper and aluminum were involved in the War Production Board's allocation schemes. Nickel, the third item that I have referred to, is, of course, chiefly used as an alloy element with steel, and steel was the third element in the War Production Board program.

Now, we have new stockpile objectives established by the Ford Administration in October last, and as I have already told you, they have got a new goal for copper at one million two hundred and ninety-nine thousand (1,299,000) tons, which is just slightly more than the amount we actually had on hand in 1963, but which

we sold because we were told it wasn't needed. Now, we are told it is badly needed, and in fact at a hearing as recently as September 9th, before Senator Hardt, the General Services Administration representative, explained how important copper was in the wartime, and how it was absolutely necessary to have this copper stockpile.

The new stockpile goal for nickel was set at two hundred and four thousand (204,000) tons. Well, we had had two hundred and twenty-eight thousand (228,000) tons on hand, but we were told it wasn't needed, so it was all sold. Now we are told that we need two hundred and four thousand (204,000) tons.

In the case of aluminum, there is no new stockpile objective, but there is a stockpile objective for alumina, and I think most of you know that alumina is the intermediate product. Aluminum is produced from bauxite, but the bauxite must be first converted into alumina, and then the alumina into aluminum. Two (2) tons of bauxite will make one (1) ton of alumina. Two (2) tons of alumina will make one (1) ton of aluminum. So, eleven million five hundred and thirty thousand (11,530,000) tons of alumina is equivalent to five million seven hundred thousand (5,700,000) tons of aluminum. That's three (3) times as much aluminum as we held in 1963.

Now, one of the interesting things about this new objective is that alumina is a very fine material, and it readily absorbs moisture. As a result, you can't stockpile it outdoors. It would blow away, or it would swell up with rain, so you have got to store it under cover. The cost of providing the storage space would be enormous. Eleven and a half million (11,500.000) tons, and here is where the question of a conflict of interest comes in. I have not been able to find anybody in the aluminum industry who was consulted by the administrative agencies to determine whether, in their opinion, it was a good idea to store alumina. Now, that is a question on which I think the people who are involved in handling the bauxite, converting it to alumina, and converting the alumina into aluminum, it's barely possible, but they might have had something to say to the government on this issue, which would be of interest. Actually, I think that you can either store bauxite, because doing that is very cheap. The cost of the bauxite is one-third (1/3) of the cost of the alumina per pound of contained aluminum. You can either store bauxite outside, that's cheap, or you can store aluminum metal, which has the enormous advantage that I mentioned earlier of being really a storehouse of energy. Seven (7) kilowatt hours of energy go into every pound of aluminum. But storing alumina is neither fish,

nor foul. It would be expensive, and difficult, and we can see no reason for it. Nevertheless, although this opinion was expressed to the congressional committees last fall when the new objectives became known, so far as I know, there has been no change in the objective. It remains on the books at eleven and a half million (11,500,000) tons, but the first pound has not yet been bought, because the money hasn't yet been appropriated by Congress.

Well, I have cited this somewhat melancholy history to you because it seems to us in the mining industry that stockpile targets have been manipulated for purposes other than national security. They have been used either to raise money when money wasn't freely flowing into the treasury at the rate that was expected, or they have been used for purposes of trying to influence the pricing situation. President Johnson made no secret of that. In 1965, when the prices of copper and aluminum came under considerable pressure at the time of the Vietnamese war, he said, "We are going to sell some stuff out of the stockpile, and you roll your prices back." Mr. Nixon said the same thing in '73 when he suggested the rate reduction in the stockpile objective. He said, "This will help to fight inflation." Now, these may be very laudible motives, but they are not in the original

bill. The original bill said that these stockpiles were for national security, the material was supposed to be there to help us in case of an emergency, and they were not supposed to be used for economic purposes, for budget balancing, for price controls.

So, we have decided, in the mining industry, that this is a bad way to go about it, and we have made some suggestions with regard to how stockpile objectives should be set. Two bills have been introduced. One by Congressman Bennett of Florida, Congressman Bennett's bill is very simple. It says that any funds realized from the sale of stockpile materials shall be earmarked for future stockpile purchases, and shall not revert to the Treasury. That will take care of the temptation to use stockpiles as a source of revenue.

Senator McClure's bill sets out a formula for determining the amount of material to be stockpiled, based on our actual, proven degree of dependence on imports for these various materials. He proposes taking the last five (5) years net imports -- imports less exports -- to determine an average annual rate, and then he sets up three (3) classifications of relative priority, A, B and C. A would be materials that we don't produce at all in this country, chrome, tin and platinum for examples. B would be materials where we produce some, but not nearly enough

to satisfy our requirements, zinc, nickel would be examples of that. And then the C category would be materials where our production is very substantial, and our import dependence relatively slight, copper and lead would fall in those categories.

Furthermore, this formula is not set in concrete. The bill provides an orderly procedure for evaluation by the Executive Branch of situations where the formula does not fit a particular circumstance. There are some commodities that are used in very small volume, where the uses are peculiar to the military situation, where the formula, based on peacetime imports might not yield a good result. For those materials, the Administration could set a different goal than the McClure formula, but they would have to explain to the Congress why they didn't feel the McClure formula was appropriate.

It's a sort of environmental impact statement in terms of the government in regard to stockpiles.

Now, the thing that I think we have to recognize is that times do change, and the country's dependence on imports does change over a period of time, as has been proven very substantially in the oil situation. So, what the McClure bill provides is that at least once every four (4) years there should be a new calculation as to what our imports have been, and there will be an adjustment

of the stockpile goals, but it is not going to be anything like a variation from zero to three and a half (3 1/2) million tons. In this way, if we develop domestic sources, our imports will tend to diminish, and therefore the goal will be reduced. On the other hand, if, as for example, in the case of the zinc industry, where our dependence on imports has greatly increased, as the imports increase, the stockpile objective would move upwards.

Well, these two bills are pending. The Bennett bill has been passed by the House. The Senate bill, in the Senate, is tabled in the Committee, and whether it will be acted on at this session is not known. The McClure bill has been introduced in the Senate. One hearing was held on it. No action has been taken by the Committee.

Many of you will have read in the press a recent discussion about the proposals that would facilitate the acquisition of a copper stockpile by raising funds through the sale of surplus tin. The distinguished Senator from this state, Senator Domenici, introduced an amendment to the Wilderness Bill embodying this proposal, which was defeated on October 20th by a very narrow margin, 48 to 44. But it did show that there was some interest in the proposition. The General Services Administration early in October had stated that President Carter had reaffirmed the general guidelines of the stockpiling program, as

announced by the General Services Administration last year. However, the Carter reaffirmation of the general principles does not necessarily apply to each and every stockpile objective in the Ford program, is endorsed by the Carter Administration. It has been stated that an interagency committee will review the situation, and will prepare a supplemental budget request for the current fiscal year to cover stockpile acquisition. Presumably, this will be brought to the attention of the Congress early in the session which begins in January, '78.

Let me say a word more about the copper and tin transaction: the price of tin today is at an all-time high. Whether you use the McClure formula or the Ford stockpile target for tin, it is clean that there is a surplus of tin in the stockpile. The major tin-producing countries have recently stated that they would welcome a release of copper from the stockpile, because, they say, the price of tin is too high, and they are afraid they are losing their markets, long-term. The copper people would like copper to be bought because they have got an awful lot of it around, and it would help the market somewhat.

But, speaking for myself and for my company, we would not endorse either of these operations, the purchase of copper or the sale of the tin, unless it conforms to the security program. The strategic stockpile

should be used only the first -- I mean, the first and overriding consideration for the strategic stockpile should be the country's security. Economic program does not fit in the stockpile program. Obviously, if there is a time when you can buy something when it is cheap and sell something when it is dear, and it falls within the security objectives, then it is a good deal for the taxpayer.

In the four (4) years since the oil embargo, in addition to this security stockpile and the subsequent quadrupling of oil prices by OPEC, there has been a lot of discussion about economic stockpiles. I tried to make clear that the security stockpile, in my opinion, is not for economic purposes. But the thought has been expressed that if we had economic stockpiles, as distinct from the security stockpiles, they could be used in peacetime to guard against disruption of industry, resulting from actions in other commodities, comparable to those which interrupted the supplies of crude oil. I guess you all know that there is a plan to stockpile oil now. The National Commission on Supplies and Shortages, which was authorized by an Act of Congress in 1975, made a close study of the economic stockpile situation in 1976. They came to the conclusion that it was unwise, and probably unfeasible to try to use economic stockpiles for purposes of price control. However, fora limited number of commodities, the Commission declared

that modest economic stockpiles might serve a useful purpose as a safeguard against unexpected interruptions in supply. I happen to agree with that point of view. I think there is a very limited number of commodities where the country is vulnerable to either cartel action, or embargos, or even just natural disasters or political offenses that we cannot foresee. It happens that at least two of these commodities, our principle sources, are two countries, Russia and South Africa. Platinum and chrome ore, the major part of our imports of those two commodities comes from Russia, South Africa and Rhodesia, of course, which is tied up in the same political difficulties with South Africa.

Considering the explosive nature of the political situation in South Africa, which I think is not entirely unrelated to the fact that their chief competitors are the Russians, and that the Russians would benefit from anything that cut off South African production of these commodities, considering that fact that we have got really only two major sources of these very important materials, I think an economic stockpile of those two is worth thinking about. And unless the undersea mining that was referred to this morning becomes significant, we might well think about a economic stockpile of cobalt, because much more than half of our cobalt supply comes from a single country,

Zaire, which is very unstable, where there was some revolutionary activity last year, which has died down, but which could easily crop up again. Tin and manganese might be two others, but the list is very short. For these materials, I do believe that economic stockpiles might make some sense.

Now, the program indicates that I am also going to tell you about international commodity agreements. I can really tell you all about them in three (3) words: they won't work. The one international commodity agreement in the minerals field is the tin agreement. The tin agreement has been in affect since 1955. It is a very complicated arrangement under which buffer stocks are used, production is controlled through export quotas on the part of the producing countries. If there is any commodity which should be capable of being subject to an international agreement, it should be tin, because there are seven (7) countries which account for between eighty-five (85%) and ninety (90%) per cent of the free world's production. They don't use any tin. They export it all, therefore their export quotas should work. By the same token, the major consuming countries don't produce any tin, and they have to import it. So we have got an agreement in which the consumers have a thousand votes, and the producers have a thousand votes, and they meet at regular intervals and

interesting places, like La Paz, and Quinsasha, and Quala Lumpur, and they discuss what the price of tin should be, floor price and ceiling price, with ranges in between. Well, at the last agreement which was in May of -- no, December of '76, the floor was set at three and a quarter ($3.25) and the ceiling was set at four ($4.75) dollars and seventy-five cents a pound. The buffer stock was supposed to keep this between these two ranges.

Well, there is no tin left in the buffer stock, and the present price of tin is six dollars and seventy-five cents ($6.75) -- two ($2.00) dollars above the ceiling. So, from the standpoint of the consumer members, they got nothing out of it, the producer members are now scared that the price has gone too high, and frankly, I just don't think it is possible to sit around a table and work out one of these treaties -- we have heard all about the undersea mineral resource problems this morning, and there a hundred and fifty (150) nations are concerned -- in the case of the tin agreement it is only twenty-nine (29). If we had a copper agreement, it would be perhaps forty-five (45) or fifty (50) countries. You can't sit around and come to any conclusions with regard to an international commodity agreement, set a minimum price and a maximum price at the same time as you have free access to speculative trading in that commodity on an international

exchange like the London Metal Exchange, where tin is freely bought and sold by anybody who has an option. The minute the speculators see that the buffer stock has run out of chips, you know, it is duck soup, to push that price up, and they have succeeded, they have pushed it two ($2.00) dollars over the ceiling. So I don't believe in commodity agreements. I don't think they will work. I know we have to sit down, be polite and talk about them as much as possible, but I hope we don't get involved.

So, this is a very complex, difficult subject. I hope I have contributed some useful thoughts to you. Thank you for your attention, and I will be glad to try to answer some questions.

(Applause.)

MR. EDWARDS: Thank you, Mr. Strauss. Any questions of Mr. Strauss? Yes, Hal Susi?

MR. SUSI: My name is Hal Susi, and I am with the U.S.G.S. Mr. Strauss, I would like to ask is there any earmark on stockpile materials that they have to be bought in the United States? Now if the answer to that is no, given the price differential that has to be maintained between the LME and the price in the United States, how do we know we are not buying copper from Zaire, for this stockpile?

MR. STRAUSS: We don't, and frankly, I would

say, Mr. Susi, that it really doesn't make all that much difference. The domestic copper producers are being hurt by the low level of prices on the London Metal Exchange. If taking some of the copper off that exchange will help to put the price up, this will be helpful to domestic copper producers. I think in international commodities, you have to look at it as a world market. I am not personally a great supporter of the "Buy American" concept with regard to the stockpile. I don't think it makes that much difference.

MR. EDWARDS: Any other questions?

(No response.)

No further questions? Thank you, Mr. Strauss, very much.

(Applause.)

MR. EDWARDS: O.K. We will take a fifteen (15) minute break. Be back in at three-fifteen (3:15).

(Whereupon, a brief recess was taken.)

MR. EDWARDS: All right. Let's come to order, please. Our next speaker, Mr. Brant Calkin, will speak on Compatible Development and the Environment, and that is a sizeable job.

Brant Calkin is a self-employed Environmental Consultant, and is Southwest Representative of the Sierra Club, Santa Fe, New Mexico. He has served as National

President of the Sierra Club from 1976 to 1977. He spent ten (10) years at Los Alamos Scientific Laboratory as an Electrochemistry Technician. Mr. Calkin is affiliated with the National Petroleum Council and the Energy Conservation Commission. He has served or is serving on numerous committees, and advisory boards, representing environmental interests. He received a Bachelor of Science Degree in Biology from the University of New Mexico

I present to you now, Mr. Brant Calkin.

(Applause.)

MR. CALKIN: I just want you to realize that from my perspective, I have moved to the right of the previous speaker.

(Laughter.)

MR. CALKIN: The topic which I have been given is "Compatible Development and the Environment", which is, as the gentleman indicated, certainly a large topic, but I think maybe the best way for me to grapple with it is to grapple with it indirectly, and to ask you to consider compatibility not in the perspective of lots of little guidelines about how many trees are acceptable for being cut down, and how many critters can be put here and there, and that kind of thing. What I really would like to do is talk about compatibility in a more political sense, or perhaps in the sense of some social trends, and maybe that

would give us an idea of where some of those smaller answers can originate.

For me this is a great opportunity, and I am trying out on you some ideas, quite frankly, that I don't think I have as fully developed as I might some years from now, but I would like to offer them sort of as a test, and perhaps we can have some dialogue later.

After listening to some of the discussion that came to you earlier this afternoon, I feel this is really a great opportunity, but it is about the same kind of opportunity that Mr. Custer had when he went to meet the Indians -- and so, bearing that in mind, I would like to embark upon a sea of concepts, if you will, about compatibility, where we are both far from firm ground.

It strikes me that compatibility has about as many modifiers to the word as there are lawyers, or perhaps public relations officials. Each one of those can use the word, and they can explain why their version of compatibility is acceptable. Then compatibility has about as many variations as there are environmentalists, and neighborhood groups and associations, and industrial competitors. And each of them can point out why their view of compatibility is a proper one. And I would say that compatibility has about as many criteria as there are politicians and legislative committees, or concerned agencies. And I think

it would be foolish to try to give you any definitions that would fit any one of those.

If there ever was anything that was in the eye of the beholder, I think compatibility may well be it.

But, let's look at some social dynamics that may affect how each one of those groups makes its own little determinations about compatibility. And remember that I am speculating now, but I am asking you to think beyond, perhaps, the sort of ritual road of individual criteria.

There is a poll which is taken about every two (2) years, I understand, in this country on a regular basis, and in this poll the government is asked -- excuse me -- the public is asked to rate its confidence in eight (8) institutions in society. I can't remember all eight (8). There is academic institutions, religious institutions, and so on, and consistently, the results on that poll over the last several years have been roughly the same, and what we find is that the institution in which the public has the least confidence is big business. The one which is number seven (7) out of eight (8) is big government. The next one up is big labor.

Now, let me make one thing clear in the discussion of what this might imply in terms of compatibility: I don't necessarily share that collective view, and I think

it reflects a sort of tragedy in American Society that those institutions which are so important and so vital, are in such low esteem. I can speculate on some of the reasons why, and perhaps justify in each case why the public may or may not accept them with more confidence, but for me, personally, I want you to understand that I am not promoting this as a point of view.

Now, we can conclude from that perhaps, if you look at the development of energy and minerals, you have got at least two (2) out of three (3) working on the exploration, development, and so on -- regulation -- and we might wonder "what is compatibility" for anything that those institutions may collaborate on? Now, for the mineral industry, they don't collaborate with government. The government is, all too frequently, an adversary. But, for many people in the public that is not the case. Now, I think that means that developers, and not necessarily only energy and mineral developers, but in this particular case I think that's true, that they bear a stigma. It's unfair, and it's inaccurate, in many cases, but in the public's perception it is real and genuine. And when we look at what is compatible, what is compatible energy development, what is compatible mineral development, I think we would be foolish not to keep in mind the public perspective that allows them to set the guidelines and

definitions for that word.

Now, whatever your own definition of compatibility is, the conference theme of "Changing Times" certainly applies. What was compatible some years ago, is not compatible now, and we can expect to see some additional changes in the future, some things which we really thought perhaps we could get ahold of and handle satisfactorily in the future are giving us more trouble than we anticipated.

Compatibility probably ought to begin on sort of a systemic basis: what are the systems which will allow things to be compatible, and I think, to a large extent, New Mexico has provided a couple of examples in which there has been some leadership in establishing a system in which the development can take place in such a way that the public views it as compatible. And there are in the audience today some people who are very helpful in reaching these agreements, and I think they will recognize them rather quickly. Let me give you an example: some years ago, New Mexico had the world's largest operating coal strip mine, and we had a lot of other coal mines proposed. We had a lot of ownership of federal land coal, as well as private land. We had no coal surface mining regulation whatsoever.

Congress was grappling with the bill at that time, and as you, I am sure, are aware, they didn't finish

it for some years, but back in '71 and '72, we wanted to take care of the problem here, and figure out what system would make it possible to have coal development that was "compatible".

The Sierra Club sat down with the New Mexico Mining Association and over the course of some months, hammered out a bill concerning the regulation and reclamation of coal surface mining, which was jointly acceptable, and we took it to the legislature and we laid it before the legislature, and we said, "On this we have agreed." And an unholier alliance there never was, but the result of that was that that bill went through every committee and both Houses and the Governor's desk without a single dissenting vote.

We established, if you will, a system in which compatibility was assumed to occur thereafter, and I think, quite frankly, most of the mining claims that had been filed subsequent to that have generally been good plans. We have appeared at the hearings and put our word in for tightening up this or tightening up that. The whole framework was one on which we had agreed, we were generally pleased with the plans, and in New Mexico, for example, coal development is taking place in a manner that most people think is compatible.

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There were certain things that happened there. First of all, we had people who were going to be on the scene for a while. In establishing that kind of a system, you have to know that the person with whom you dealt is going to be around to enforce his or her side of the argument.

Changing corporate officials, changing environmental leaders, changing government agency heads, and so on, make it difficult to make these agreements stick. But basically, we had companies that were going to be here, and their officials, we thought, were going to be relatively permanent, and none of us were planning to leave the state immediately. So, in that permanence and in that opportunity for personal communication, we were able to create this rather unique situation, and the success, I think, has been enviable.

Now, there has been another example concerning the Public Service Company of New Mexico, although it is a utility, which decided that it really would like to control sulphur pollution from its power plant up in the Four Corners Area, but probably would not be able to achieve much tranquility if they picked the level which was the minimum the law requires for control, and one of their people put it, "We didn't see anybody riding in the streets suggesting there ought to be more pollution." So, they anticipated what the need would be, what the compatibility

level would be, and I think it was a marked, really enlightened leadership on their part, and together with us we worked out what we thought was a really good sulphur control strategy for New Mexico, for their power plant, at least. And then, we, being the decal freaks in this equasion, went to the EPA and supported their request for an extension on their variance in time necessary to reset level of control. They agreed to reach more than the laws required. Generally speaking, that plant is moving ahead. They are talking about expansion. Their development -- their energy development was compatible with the environment because, quite frankly, they were willing to perceive what the changing times would require, and enter into a system -- a regulatory system, whereby that compatibility would be achieved.

Now, that hasn't always been the case, and I am afraid that those who drag their feet are going to reap the rewards, not only on individual projects, but under the dynamics of confidence that I mentioned earlier in that poll.

Now, let me just give you an example of how I think the confidence level has been reached in the public on some of these institutions. One utility company showed up in our State Legislature last January, and I can't give you the exact quote, but I can give it to you pretty close:

"We'll do nothing more than we have to do, we'll do it no sooner than we have to do it, and we'll do it at no level required, that isn't required by law." And their view was that to do otherwise was to violate their stockholder trust.

Well, that may be an acceptable policy decision for an energy development company, or a utility, or whatever, but in terms of that vague and insinuating feedback into the public confidence, I think that has built that number eight (8) qualification, for big business.

As I pointed out with the Public Service Company of New Mexico, there is a much different reaction. But, unfortunately, the public is going to look at those perhaps most blatant expressions which don't reflect changing times, and that's going to set the level of their confidence.

So, that was one which I thought was particularly appropriate for perhaps 18th Century, but certainly not appropriate for the changing times of the day, and it is not going to do the company any good, or the industry.

Now, there was another one which occurred -- and I mentioned the strip mining example here in New Mexico, at about the same time, a statement was made which was one of the worst -- I am giving you a really prime example -- which I think reflected badly on the industry, and the

stigma, I'm sure, remains, "Conservationists who demand that strip miners do a better job of restoring the land they tear up have been denounced as 'stupid idiots, socialists, and commies who don't know what they are talking about,'" Vice President of Consolidated Coal Company. Well, I would suggest that almost nothing that consolidation can offer to the public in the way of development is going to be compatible. Simply because, the confidence level which they have achieved with the public, is in large part determined by that expression, and that kind of expression.

I personally think that there are people in Consolidated Coal with whom I have dealt, who are reliable, responsible, progressive and they certainly own a bunch of coal in New Mexico, and we are not unhappy with what they are doing, but around the country, that is the way the public's view of what is compatible is shaded.

Now, there is one other which I will give you, and I thought I would try to be fair and give a lick to government although I hope these are examples which are more constructive than damning. And some of you may even have been present to hear it. This is a comment that was made by none other than Interior Secretary Rogers Morton, back in the 1974 Annual Meeting of the Society of Petroleum Engineers: "If you aren't successful in finding more oil

and gas, don't blame me because I am going to turn you loose over all outdoors." Well, that didn't take long to get picked up by the press. Now, how is the public going to view the regulatory attempts of the government agencies when one of the chief spokesmen for government makes that kind of comment? Their view of what is compatible development is going to be that that government doesn't care whose definition is used -- turned loose over all of God's outdoors. So, ask yourself what are the chances of someone's development being compatible with the public confidence in the various institutions being at that level? As I say, I don't consider that to be a fair burden, but I think it is a dynamic which has loosened society, and we ought to recognize it. Whenever we try to talk about compatible development one of the first questions that is going to occur is "Whose?" And their record is going to come with them.

Now, you are sophisticated enough to understand the direct environmental impact of almost any given development, and you can certainly find out. And if you don't know precisely what they are, you can guess, I think, with some reasonable assurance of what the critters are, the access problems, and so on. Where most of the problem occurs, of course, is where we balance what we find out. What is appropriate in each one of these public's minds,

and so I am going to suggest some criteria to you which are different than the list, like I say, of critters, and access, and trees, and ask you to speculate on those a little bit, too. I think environmentalists generally are agreed, and on this they have been explicit, compatibility means that external costs, i.e., the social and environmental costs, for example, are included in the product cost.

Now, this is called internalizing the externalities, which is, I think, a terrible phrase, and it's the only -- the only people who would use it are somebody who already understands it. You certainly couldn't go out in the public and say "internalize the externalities" and nobody would know what the hell you were talking about, and they wouldn't understand what it had to do with compatibility. But it really is an economic consideration. If, for example, strip mining reclamation is not paid for at the time that the product is mined and sold, is it going to be paid for at all? Well, it hasn't always been the case that it has been paid for ever. And certainly there are places in Appalachia which indicate what happened when that cost, if you will, was deferred, indefinitely, in many cases.

Now, you might wonder what the cost is. Well, how do you know what the cost is of something like that,

just because it happened fifty (50) years ago and someone left it. Well, data is hard to come by. But, take a look at the budget of the Appalachian Regional Development Commission. Last time I looked that budget was something over three hundred million ($300,000,000.00) dollars, which came out of the Federal Treasury and a large part of that was to try to rebuild not only lands, but whole societies and government interest structures, and human services, and so on, in that area, which hadn't extracted, if you will, the internal -- the external cost at the time the development took place.

So, you know, there is perhaps a bill of three hundred and some million dollars, coming every year, I might add, that reflects what happens when these externals, or sometimes people call them "non-productive costs" put aside. We had one right here in New Mexico which is not nearly as grandiose, but it is an indication of how this can occur. We already have what I would call orphan uranium tailings piles. No one is around to take care of them, the mining was done, the operation is gone, and there the pilings are, the tailings are, blowing around, and the State doesn't want to pick up the tab. The Feds are reluctant, we can't find any private industry which would like to volunteer to come forth and spend money, so there is an indication that somebody is going to have to

pick up the tab for this, and that was an external cost which was ignored at the time.

Well, there were also some deferred costs, and I would offer as examples the cost of decommissioning a nuclear power plant, or perhaps the cost of storage of nuclear waste. Now, those are examples where the cost of the operation isn't fully integrated into the price of the product at the time, and that has a surprising affect on what is considered compatible.

Generally speaking, people don't like to see overemphasis on production of some natural resource any more, without having the concurrent other values counted in. Now, compatibility also means that successful economics for the operator, or the development, don't rely on preferred economic status or treatment, and I heard some things this morning which I thought were perfect examples, but the one that I had written down in my little notes earlier is the copper depletion allowance. A proposed copper operation, or even an existing copper operation which pleads poverty before a regulatory agency in terms of its environmental impact, and which at the same time receives some status that the citizen doesn't receive, or that the citizen perceives as being some kind of special benefit. Now, that doesn't sell too well. There is a conflict there, and I don't think it does much for the

confidence level, but people are beginning to look at compatibility as -- well, you know, are you justified in setting the level of cleanup, or compatibility at that level? Or, are we supporting you? And, are we going to ask you to achieve some level that is based upon our financial interest in what you are doing? And I think the subsidy issue and the depletion tax issues, and so on, are a good example of how the public perceives different levels of compatibility. They might not ask an industry which was truly down-and-out, and not receiving any help from anybody, but was existing in the free enterprise system, if such a thing remains -- they wouldn't ask them necessarily to go out of business, but at the same time they have got their hand in the public pocket, the public is going to say, "Listen, your operation isn't compatible, clean it up."

And another kind of a system that the public is beginning to view, which is primarily economic, which backs up environmental compatibility, is public works projects which tend to benefit one industry, without repayment or some other benefit. And I think agriculture is a good example of an industry which has received a lot of public works support, and I think you have already seen examples where the public says, "Listen, we have already done this for you, now you're supposed to do that in cleaning

up your irrigation water discharge, or whatever." And that kind of assumption of public support carries with it a view of compatibility, which may be a little different than you have anticipated.

Now, one of the reasons that I would like to bring this out is that compatibility is, to a large extent, a matter of tradeoffs, and I think you all understand that. But once you get your hand in the federal till, or the public's pocket somehow, or they perceive that you have, the tradeoffs are obscured. Nobody knows what the price of the product really is, and we don't know how much we should say, "Well, that's just the way it goes, and that's the best level of compatibility that we can achieve." Or, "We have already paid for this."

Now, the additional correlary to that kind of economic concern is that patterns of resource consumption and development are accelerated or impeded by the price of the product being influenced by these things. Now, there is a tendency for people to say that regulation is a problem that raises prices because it complicates all kinds of energy development, and so on, and that is correct, absolutely correct. But it is also true that any kind of a tax break does the same thing.

Now, you can call things incentives, you can call them welfare for the rich -- it doesn't make any

difference what your particular vocabulary is -- all these things, to some extent, affect price. And the more of them there are, the more difficult it is to figure out what the real price is, and if you don't know what the real price is, you can get off on something like rather extensive use of natural gas, because the price is artificially depressed, and then when the kitty runs out, you find you have got a crisis, or at least, an impending crisis.

So, by giving incentives, if you will, of one kind or another, we can mask to the public what the real worth of the resource is in the economic marketplace, and allow the public to build other institutions upon that improperly priced product. So, you know, what is compatible? Well, you are not going to be able to determine environmental compatibility without some application of economic compatibility, and the two, and resource utilization become intertwined.

So, I am just asking you here today to speculate on what the relative position is of the energy industry and all its various components in the minerals industry relative to that kind of help.

Now, it is proper, I think, to alter those kinds of economics, and through social policy or need for national security, or whatever, you can write whatever law you want that gives you whatever tax break is appropriate

to provide an incentive if that's what is needed. I mean, those considerations are not improper. What I want to emphasize is that if they continue, and they become institutionalized instead of a response to a specific need, their origin becomes vague and the next thing you know you have got a reaction from the public. I would suggest that there is no problem in talking about giving some kind of incentive to the tin production in the United States if that's what we need for national security. And when five thousand (5,000) acres was yanked out of the Gila Wilderness back in the early part of World War II, because they needed the minerals in it, nobody said, "Boo." And that was proper at the time. So, we can alter these things, and we can expect to implement those alterations. But, as a general matter, I don't think we want to continue all kinds of piecemeal sort of economic incentives on the assumption that everybody needs some incentive, but nobody needs the real price.

Now, the result of that is, I think, that tradeoffs have to be explicit. They probably ought to have a sunset provision of some kind, and we ought to make the decisions consciously, and then we can figure out what the tradeoffs are, what is compatible, and so on.

Now, there are some other considerations which relate to compatibility, and they are, again, political.

One thing that I could think which is very important is prime roles and involvement. I got into a hassle with an energy company in New Mexico several years ago because my request -- this is a public lands issue -- my request for information and a chance to provide some input to the mining plan, and it wasn't just me, by the way, it was a lot of other people, was disregarded, and the mining claim was issued with no public involvement. It caused the mining company a lot of trouble.

I think what is compatible is largely what is not a surprise. It's a political matter -- O.K. -- because the confidence in the institutions that are doing it isn't too high. A lot of environmentalists are willing to let and certainly would encourage, even, development to take place if they had some warning of what was coming on -- if they had some chance to evaluate, is that company doing what it says it is going to do, and has it done well before, has that agency done the same -- has the Bureau of Land Management been frank with us -- and so on.

I think there has been a lot of trouble with rather hasty notice, and notice which came, quite frankly, after a great deal of the discussions and decisions had already taken place.

Now, I have talked rather vaguely about some of these social dynamics and so on, but I would like to

take the opportunity to anticipate some problems with you, to be quite frank about it. I think the system -- the system of mineral development exploration under the 1872 mining law is "incompatible". I don't think the institutions that are involved in it have the public confidence. Again, I don't say whether it is deserved or not. And I think that the increasing competition for all uses of public land is bringing us through these changing times to the point where we are going to need a different law. Now, for the people in this audience, I think that is a special area of interest, and I don't want to come up here and talk to you about some rather speculative things, and leave it at that. I want to point to something which I think is going to cause us trouble. Perhaps more trouble than necessary. If we have the same kind of advance notice and proper relation that we had with the New Mexico Mining Association, for example, we can probably lay aside a fair amount of controversy that may arise. But I think I ought to tell you, quite frankly, that the system of development, which is basically non-discretionary, isn't going to be compatible. Most mining as a practical matter, is, or can be compatible with other environmental interests, and those should be examined on a case-by-case basis.

Most mining activity in the country isn't under any kind of attack from citizens. Those cases where there

is some concern and some controversy are quite newsworthy, but they are not really symptomatic, I don't think, of the basic level of acceptance of the industry.

At any rate, I would like to suggest to you that the unilateral system in the 1872 mining law is incompatible, and must reflect changing times.

Now, my discussion today is not, as I say, to inventory endless criteria of some kind of biological compatibility, or to demean industry or Government, or even to glorify or defend the Sierra Club or other environmental groups. We all look at what's happening with a certain amount of dread, and I don't want my discussion to heighten that too much. By the way, our perception of what the future holds can be a little bit wierd. Let me just give you a personal story about how my view of a future danger changed rather abruptly.

About fifteen (15) years ago, when I was working at Los Alamos Laboratory, as the gentleman mentioned, and I was at the time unmarried and unattached, and I simply wrote on the blackboard every Friday when I got off work where I was going, that weekend, which was always into the mountains somewhere, and so one Friday I did that -- I wrote "Rio Anmedio Creek, Pecos Wilderness" -- it doesn't make any difference where -- and at five o'clock I got in my car to go to the end of the road -- by that time it

wasn't quite dark, and I put my pack on my back, and I walked down this canyon, and up the canyon into the Pecos Wilderness, and I walked, I don't know, maybe until about ten o'clock. And by then it was dark except there was a pretty good moon out. I was tired and I found a nice camping place right next to the stream with a nice big flat bench, and lying across that bench was a fallen tree about three (3') feet high, and I thought that was very convenient. I just took off my pack and leaned it up against the tree, took my sleeping bag and rolled it out with my head next to the tree, and the pack nea rby so that I could just reach over and get some stuff in the morning, and drifted off to sleep.

Well, some time later that night, I don't know, maybe two or three o'clock in the morning, the moon had gone. The only light there was really was a little star glow, and the other side of that log I heard this snuffling and gruffling, of some large critter. And I love critters, but I wasn't sure about that one. And I just knew that bear wanted me, and he either wanted me, or he wanted the pack, and the two were too close together for him to discriminate, and I just laid there. I was trying to think, well, let's see, if I try to rip out of this bag and make a break for it, maybe I will make it to a tree, but if I scare him, he is just going to swat me down and that will be

the end of that, or I could let him come over here on the other side -- on my side of this log and start rummaging around in my pack and maybe he will maul me, but if I had the courage, I can play dead. Which, I am told, is what you are supposed to do when you are being mauled by a bear.

(Laughter.)

And so as I was laying there figuring out which of the options the future held for me, right over my head this enormous form appeared, coming over this log, and there was just no chance for a choice of options at that point. I was sure I had had it, and the next thing I heard was this big "moo".

(Laughter.)

So, I found that my perspective of the future and its dangers wasn't nearly as great as my imagination had led me to believe. And we talk about some of the problems of changing the 1872 mining law, I don't think we necessarily have to go as far as some of our imagination might allow us.

I offer these comments really to explore some of the basic dynamics, which, I think, are a foot in society, and I offer some not-so-obvious economic considerations that determine, or help affect considerations of environmental compatibility.

I appreciate very much your attention on this

speculation, and I thank BLM for bringing us together. Thank you, very much.

(Applause.)

MR. EDWARDS: Thank you, Brant, for coming. We are pleased that you participated in this forum. Are there any questions for Brant? Come now, there has got to be. We have got a Sierra man up here.

(Laughter.)

MR. EDWARDS: No questions? All right. Thank you, again, very much, Brant.

(Applause.)

MR. EDWARDS: Our last speaker on the program, and I assure you, by no means least, is Mr. Peter MacDonald. Mr. MacDonald is a highly respected citizen in the Indian Community, and he is a very highly respected citizen of all of New Mexico. He is -- has been the Chairman of the Navajo Tribal Council, Windowrock, Arizona, since November, 1970. Prior to his election as Navajo Tribal Council Chairman, he was Director of the Office of Navajo Economic Opportunity, the Navajo Tribe, Fort Defiance, Arizona.

He has also served as Director, Management, Methods and Procedures, Navajo Tribe, also of Windowrock. Mr. McDonald graduated from Bacon Junior College with an Associate of Arts Degree in Social Science in 1951, received a B.S. Degree from the University of Oklahoma in

Electrical Engineering in 1956. He also attended the University of California at Los Angeles. He has worked for Hughes Aircraft Company, El Segundo, California from 1956 to 1963, and served with the U.S. Marine Corps in the South Pacific during World War II.

Mr. MacDonald is going to talk to us about The Value of Indian Resources in The National Economy.

Mr. MacDonald.

(Applause.)

MR. MACDONALD: Thank you, very much, Frank, ladies and gentlemen. It is really an honor to be asked to be part of this forum here today. You know, being the Chairman of the Navajo Tribe, I do have my political problems, but one of the big problems that I have had today was that I usually travel with a close assistant, a Navajo boy, and he had a ceremony done for him last night, and because of this ceremony he had to wear some white paraphernalia with a band around his head, and he couldn't travel with me today, and he was very disappointed. And he couldn't understand why I didn't want him to come with me, because one of the reasons, I am also Chairman of the Council of Energy Resource Tribes, and recently you have been reading about the CERT have been meeting with OPEC nations, and I said, "Well, goodness sakes. All I need to do is show up at this energy conference with you dressed

up like that, and people will say, 'My God, CERT already made a treaty with OPEC'." So he understood, and stayed home.

Talking about treaties, you know, a week or two ago President Carter was in Denver, and he invited certain Southwest people to be briefed on the Panama Canal Treaty, and for some reason or another my name probably came out of the hopper and I was asked to be part of the group to be briefed on the Panama Canal Treaty. And -- which reminded me of the -- an incident that happened on the Navajo Reservation which may be appropriate to tell again here.

Back in 1971, My first year in office, NASA approached me to have a Moon Mission Practice Session on the Navajo Reservation. It was Apollo 15, it was going to go to the moon, and the astronauts were David Scott and Jim Erwin. Well, we gave the permission, they were on the scene, they were going through the whole exercise as if they were on the moon, and a Navajo medicine man came upon the scene, and the astronauts had full gear on, the mask and the pack, and the moon buggy, and they were kind of bulky as they were walking around, communicating with Houston. And the medicine man asked, "What are these two funny-looking guys doing here?" I said, "These two guys are going to the moon," and he said, "To the moon -- you

know that the Navajos were on the moon once on their way to the sun. I would like to send a message if these two guys are going over there." I said, "Fine. When they come back in I will ask them." So I approached the astronauts, and I told him what the medicine man said. They said, "Well, fine. Have him -- whatever message he wants to write -- have him write it on a piece of paper." I said, "Navajo is not a written language." So they said, "Well, use a tape recorder. Have him record whatever he needs to transmit to the moon." And they went back out and the medicine man and I sat down and tape recorded this thing. He left and the astronauts came back in, we had a little refreshment, and after the refreshment, they said, "Hey, did the medicine man record the message?" I said, "Yes." "Well, let's hear it." So I turned it on, and it went something like this: (Mr. repeats aforementioned message in Navajo Language.) They said, "What did he say?" He said, "Beware of these two fellows. They will want to make a treaty with you."

(Laughter.)

But I know you didn't come to hear me talk about treaties. I was looking at the title of my talk here, The Fair Market Value Of The Indian Resources In The Nation's Economy. You know, I have been going to these energy conferences I guess two (2) or three (3) times now, and for

some reason or another people select what topic I should talk on, and I knew somewhere, sooner or later, they would try to con me into getting at what this whole conference is all about -- really, what does the Indian want for the coal, uranium, oil and gas that they have on the reservation.

So, I guess today is the day. As you know, I spend a heck of a lot of time running equasions, several billion tons times fifteen (.15¢) cents, no -- twenty (.20¢) cents -- and then the barrels of oil, and then try to calculate the other factors that might be put into the price of the resources, and finally with several tapes and several battery changes of the miniature computer I have, I decided I was going at it the wrong way, because the figure kept on changing, and kept on changing, and I know you don't want to sit here all evening. Besides I was last on the agenda here, and I know some of you have five o'clock flight, and five-thirty flight, and you want to stay in here and try to get to the end of what the real market value of the Indian resources is.

So, I decided to dispense with that -- maybe at the next conference, but not now.

(Laughter.)

But allow me to start with your terminology, and your title, Fair Market Value, in the hope that if I adopt your terms, you may come to an understanding of mine.

I consulted an appraiser the other day who gave me the following definition of market value. He says, "Market value is the highest price expressed in terms of the money property will bring if exposed for sale in the open market. With a reasonable time given to find a purchaser, buying with the full knowledge of all the uses and purposes to which it is capable of being used by person willing to sell to a person willing to buy in the absence of compulsion, both acting without duress."

There are also, I am told, several basic ways to estimate a figure that appraisers use, like they generally include a look at comparable sales, they compute replacement value, and they look at something they refer to as "best and highest use."

If we are to take your topic, the topic of Fair Market Value of Indian Resources in the Nation's Economy very seriously, then I must say that there has never been a fair market price set upon Indian resources, and there probably cannot ever be. The only thing that can be in the eyes of the Indian is some form of expropriation in the form of something which you label a sale, and which we label a condemnation proceeding. In other words, the sovereign declares that the public interest in the use of a piece of land exceeds the right of the individual property owner. Then, at best, we are talking

about just compensation to be provided by due process of law.

But I personally prefer the notion of market value according to the definition of the appraiser that I consulted, for it assumes the absence of compulsion, both parties acting without duress, full knowledge of all the uses and purposes for which the property is capable of being used, exposure for sale on the open market, exposure for sale for a reasonable period of time.

So, then, using your own definition, let me submit to you three (3) propositions: One, the Indian has not received fair market value past, and present.

The Indian will not receive fair market value in the future, and

The Indian cannot receive fair market value.

I know that most of you would rather stay away from the proposition that the Indian has not received fair market value.

You know and I know that most transactions between Indians and non-Indians have not been characterized by the absence of compulsion, or without duress.

Conquest, occupation and expropriation have entangled us all in the past, and there is much resentment and confusion about this. The Indian claims theft, the white man claims that we are now demanding an exorbitant

price for our resources, yet these so-called exorbitant prices for our resources are based upon the increased value that the white man's technology and capital have created. We call each other names, we stalemate each other, finally, in frustration, you resort to law, your law, taking comfort that it calls for just compensation and due process of law because you have no patience or understanding for our seeming stubbornness. And we have no trust in a process of fairness that is not grounded in an understanding of our values.

So let us talk about the present and the future propositions, since the past is irreparably tangled up in accusations and counter-accusations. Let us first admit, to each other at least, in the spirit of honesty, that we do not really mean fair market value for Indian resources. Why? Because, A. Our resources will never be put for sale on the open market because we have a trustee who determines whether or not we can put it on sale and to whom we can offer it for sale and what price we can accept it.

B. It will never be offered to all bidders, but only to some bidders. This becomes much clearer if I simply say to you that the United States Government would never permit us to sell our land and our resources to the United Nations, for instance, or to the World Bank, or to the Organization of American States -- even if, in return

for such a sale, we could obtain an exchange of land together with the investment capital we would need to become self-sufficient economies. I am not saying that we could or would sell our land for that price to such a buyer. I am simply saying that we are not dealing on the open market, and that American manufacturers who sell planes and arms and grain are dealing in a more open market than we are, and they are certainly not dealing in what they would call an open market.

C. It is doubtful that we can ever be willing sellers of land, acting without duress or in the absence of compulsion. We have to live and eat and subsist during the time we wait to sell our resources at the best price. And the persons who control the terms of the sale also control our supply of food, our medical care, and the education our children receive.

D. It is doubtful that we will ever know what the seller as well as the buyer should know, for example, the uses and purposes which our land and resources are capable of being used. We consistently lack the technological knowhow, the independent experts and the ability to project into the future. So when we sit down and talk to the big mineral and oil companies, we have our one lawyer, and they have their thirty (30), we have an outdated study by the Bureau of Land Management, they have

their geologists, I mean the big oil companies have their geologists and engineers, and experts by the dozens. In short, we don't know what our resources might be worth because we don't even know what we are selling, and can't find out.

But that's not your fault. And too much of the bitter rhetoric of the past has been with each of us blaming each other for what we must all recognize as facts of life: no open market; no sale to all bidders; no absence of compulsion or duress; no knowledge of potential value or use.

If these then are facts of life, then we must learn how to live with each other. We must learn how to respect each other and have some appreciation of each other's needs.

So, I would like to take this occasion to talk about what we mean by fair market value from a Native American perspective. And then I would like to set forth some of the ways I think we can transact business on more equitable terms and with less rhetoric.

First of all, you must take my word for it, that we, the American Indians, are loyal Americans. That we care about this nation, and that we understand its needs, that we desire to see it flourish and survive, and that I and others have in the past, and would gladly in the future,

lay down our lives to protect this country and its future, your country, but my country, too. White man and Native Americans, both. And we understand that if we are to get on with the future, we must stop lamenting the fact that we had lax immigration laws and shaky border patrols. We will have to find other ways of getting on with the future than accusation and recrimination.

And now, let us talk about the land, the Navajo perception, the Native American perception of land.

You must understand that we have several concepts of land, not just one.

First, the surveyor's definition: I am an engineer, and you were told, and I am familiar with the definition of land in terms of acres, meters, milestones, and boundaries. Our Indian land base in these terms, has shrunk from one hundred and thirty-eight million (138,000,000) acres in 1887 to fifty-five million (55,000,000) acres in 1966. As we have seen in Alaska, and in Maine, there is no great enthusiasm for attempts on the part of Native Americans to expand that land base. Most of us seek simply to make sure it does not contract.

Second, the Economist's concept: we depend upon land as a source of subsistence -- of food, shelter, and income for survival. We face problems of overgrazing and drought, brutal winters and dry summers.

Thirdly, the economic developer's concept: land as the basis for future economic and social self-sufficiency. I have become somewhat notorious for insisting that if we are to sell the present, if we are to sell our resources, the only fair market price is that which will insure a legacy to bequeath to our children when those resources are gone. What we have we must use as our only leverage to secure a future for our people.

Fourth, the conservationist's viewpoint: the gentleman you were just listening to here -- we regard land as a resource to be protected for its beauty. We regard the balance of life as something to be preserved. Ironically, the very conservationists who fight so hard for preservation of natural resources elsewhere seem to disappear when the Navajo or the Eskimo tries to take prudent ecological measures. Then we are truly all alone,

Fifth is the religious concept of land: land for us embodies a sacred relationship between man and his universe, land is not to be defiled, desecrated or cheapened.

Without dwelling on each of these concepts, I wish to spend a few minutes on land as homeland, and as holy land.

The American mind is capable of grasping the notion of a holy land in Jerusalem, Mecca, the Vatican, but

for some reason or another, not Northern New Mexico, or Arizona. If I asked some of you what the fair market price of Israel is, and others, what the fair market price of the United States is, and some of you what the market -- fair market price of New Mexico is, you would look at me as if I had lost my senses. Don't you understand, you would say to me, "That some things are not for sale."

And I would reply to you in the words of the Indian peoples, "Is not the Sky a Father and the Earth a Mother, and are not all Living Things with feet and wings or roots their Children?"

We regard our homeland as Holy Land. And you must understand that: Holy Land is not subject to partition or fencing, Holy Land is not a resource for exploitation, Holy Land requires a special legal status -- full title held in trust to be honored above and beyond normal forms of property ownership.

So where does that leave us? I was asked to speak, as a potential seller, about the fair market value of Native American resources. And I am sure you didn't come here for a lecture on Indian Culture, or religion, or mysticism. You ask, perhaps in your mind, "What does he really mean?" "Is this some elaborate sales pitch for jacking up the price?"

This is not the case, for some things are not

for sale. And if we are to treat each other with respect, then you must understand that our way of life and our children's right to maintain it is as precious to us as your way of life and your children's right to maintain it. So that when we speak to each other, we must understand that we are all Americans.

I am sure you remember the song -- heard it many times, "This is your land, this is our land." Well, when a group of Indians get together, and they feel very bitter, sometimes they sing it this way, "This is your land, this was -- was our land."

But if we are to treat each other as fellow Americans and as neighbors, then we have to come to some basic understanding.

First, I want to stress again that we, the American Indians, appreciate the American dream. We are patriotic, and we are loyal. We are proud of this country -- of America. And it was your youth, the children of the privileged non-Indian families, who were far quicker to condemn this country than our children. We volunteered during World War II. But we volunteered also during the Korean and Viet Nam conflicts. I am not saying that this country has always been right. I am saying that the Indian has been consistent in loving this country -- and he has been less fickle in that love than others.

Secondly, our culture is part of your legacy. We joke about that and say, "Where would John Wayne be if it wasn't for us?"

(Laughter.)

But we like to think that our culture is part of what is perceived as distinctly and authentically American, around the world. And this nation's treatment of our people and our culture is in many lands the true test by which our nation's commitment to freedom and democracy and equality is judged. For better or for worse, we are now bound up in the same future. That is true of this region, the Southwest region. It is true of this nation. If not out of self-interest, we must be committed to each other's survival -- neither can flourish without the other, neither can win respect around the globe without respect for each other at home.

Thirdly, we understand the right of eminent domain. A grave national need may at times warrant the use of that power. In the past, it has been invoked as an excuse, just as national security has been invoked as an excuse for invading other precious American traditions.

But national need, like national security, can be real. We respect it. And we understand that our resources may be needed for national survival, and for survival of our way of life, your way, my way, our way.

Fourthly, and finally, you have a reciprocal duty to protect our future, to see to it that the claim of national need is not biased, that our vulnerability is not exploited, and that wherever possible, alternative means are developed so that our resources and our hope for the future is not treated as the most expendable.

We are painfully aware that we are vulnerable -- to the State Legislature and to the Congress. We fight back gamely, we even win some skirmishes, and oftentimes we appear to generate a lot of panic by a single war cry. But we understand that if you call out the legislative cavalry, the judicial cavalry, and the executive cavalry, we can be rounded up again, marched to Fort Sumner again, and resettled. We understand that genocide comes in many forms -- exile, expropriation, forced migration.

So there is no fair market value of Indian resources. For there is no open market, no knowledgeable seller, no absence of duress, and no price we can place upon our future, and our children's future.

All we have -- all we have ever had, is our sense of community -- as Navajos, and as Americans.

Sure, we have coal and uranium -- but we also have vast stretches of land from which solar energy can be drawn and the winds harnessed.

We have water and minerals. But we also have

a culture, and we value the air we breathe and the sun we can still see.

We ask that you seek alternatives, that together we seek alternatives before we prey on each other. The investment you make in finding alternatives will help us develop alternatives also.

A poet of your culture once wrote:

"Though you have shelters and institutions,
Precarious lodgings while the rent is paid,
Subsiding basements where the rats breed
or sanitary dwellings with numbered doors
or a house a little better than your
neighbor's; When the stranger says, "What
is the meaning of this city?
Do you huddle close together because you
love each other?"
What will you answer? "We all dwell
together to make money from each other"?
Or, "This is a community." "

A few years ago, N. Scott Momaday, a Kiowa Indian, wrote:

"There was a house made of dawn.
It was made of pollen and of rain,
and the land was very old and everlasting.
There were many colors on the hills,

and the plain was bright with
different colored clays and sands.
Red and blue and spotted horses
grazed in the plain, and there was
a dark wilderness on the mountains
beyond. The land was tilled and
strong. It was beautiful all around."

I do not know the fair market value of that house. I do know it is the house we must all live in -- together.

Thank you, very much.

(Applause.)

MR. EDWARDS: Mr. Chairman, very well stated, and I can say you make me proud to be a fellow American.

Are there any questions of the Chairman?

(No response.)

If no questions, I would like to say that I have certainly been pleased with the participation, and the extremely high quality of all the speakers that we have had, and as I said this morning, I have had that expressed to me again today -- we are at a point in the Bureau of wondering whether or not we should decide to continue this type of meeting on a bi-annual basis, and to help us make that decision, it would be most helpful to us if you would give us your comments, in writing, about this

meeting, and this type of meeting, and whether it should be continued, and what the value is to you from your particular perspective. We would most appreciate those.

Secondly, as I have been asked a number of times, how did we get the tremendous array of varied speakers that were so well-qualified and prepared so well, and as I said when we opened this session, George Nielson was the man who was responsible for all of that. I think George would appreciate very much, if you feel led to do so, to just drop him a line and say how you appreciated his efforts during this conference, and you could just simply address it to the Bureau of Land Management, Colorado State Office, Denver, Colorado.

I have no other comments, or other announcements. Art, do you have any final word you would like to say?

MR. ZIMMERMAN: I, too, would like to express my thanks to all of you. The comments -- if you have good comments, send them to the New Mexico State Office. If they are poor ones, send them to Washington.

(Laughter.)

We thank all of you. Have a happy, safe trip home, and -- what is it they say -- Adios, Amigos.

(Applause.)

(Whereupon, the conference in the above entitled matter was closed.)

C E R T I F I C A T E

This is to certify that the attached proceedings before the BUREAU OF LAND MANAGEMENT, SOUTHWEST ENERGY MINERALS CONFERENCE,

THEME: "Changing Times", held at the Kiva Auditorium, Albuquerque Convention Center;

PLACE: Albuquerque, New Mexico

DATE: November 2 and 3, 1977

THAT the foregoing pages 1 through 409, inclusive, are a true and correct transcript of my stenographic notes and electronic recording, transcribed by me and under my supervision.

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